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THE JOURNAL OF THE

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BOTANICAL  
SOCIETY

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OF SOUTH AFRICA

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Edited by R. H. COMPTON  
M.A., F.R.S.S.Af., Director of the  
NATIONAL BOTANIC GARDENS

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Part XXI. 1935

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KIRSTENBOSCH,  
NEWLANDS, C.P.  
SOUTH AFRICA.

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Published under the authority of the Council of the Botanical Society





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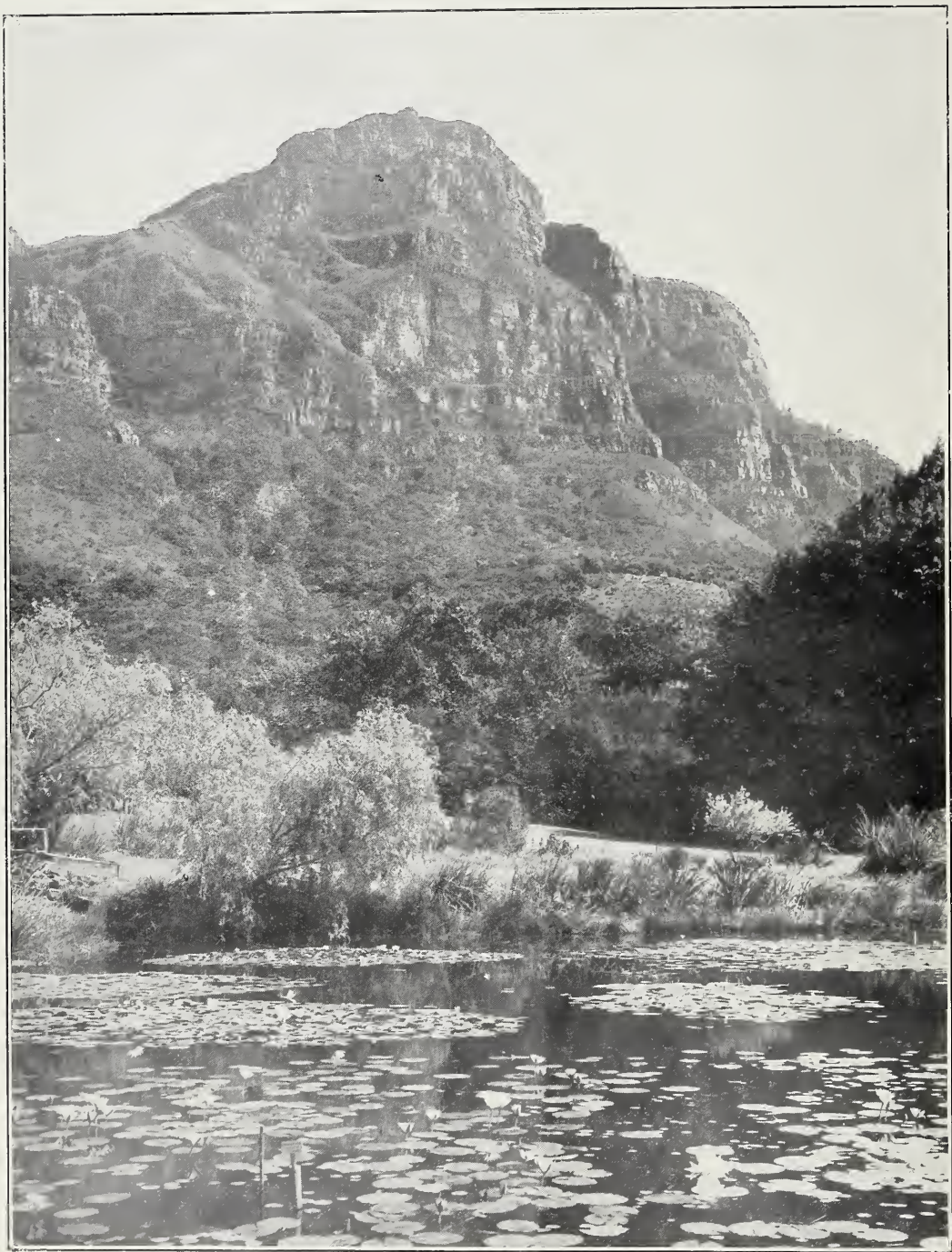


PLATE I.—KIRSTENBOSCH: The Pond and Fernwood Peak.  
(By permission of the Cape Peninsula Publicity Association).



# The Journal of the Botanical Society of South Africa.

EDITED BY R. H. COMPTON.

PART XXI



1935

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# News and Notes.

THE Botanical Society of South Africa has shown a steady increase in membership ever since its foundation in 1913. The following table gives the figures at biennial intervals to the end of 1934:

|          | Life. | Family. | Ordinary. | Associate. | Total. |
|----------|-------|---------|-----------|------------|--------|
| 1914 ... | 33    | 22      | 264       | 33         | 352    |
| 1916 ... | 49    | 26      | 264       | 45         | 384    |
| 1918 ... | 49    | 28      | 281       | 78         | 436    |
| 1920 ... | 54    | 45      | 384       | 237        | 720    |
| 1922 ... | 55    | 52      | 418       | 301        | 826    |
| 1924 ... | 62    | 57      | 455       | 313        | 887    |
| 1926 ... | 65    | 60      | 481       | 341        | 947    |
| 1928 ... | 66    | 54      | 581       | 345        | 1046   |
| 1930 ... | 71    | 76      | 718       | 414        | 1279   |
| 1932 ... | 72    | 79      | 746       | 446        | 1343   |
| 1934 ... | 77    | 93      | 889       | 535        | 1594   |

During 1935 also there was a further noteworthy increase, the latest figures at the time of going to press showing a total of 1851 Members. The Two-Thousand mark is well within sight, and we urge upon Members to make the small effort required to induce their friends to join the Society and so support its work and that of the National Botanic Gardens.

\* \* \* \*

In addition to the above Members, each one of whom supports Kirstenbosch by his subscription, a considerable number of Members—189 in all—pay the extra contribution towards the support of the Karoo Garden, Whitehill.

\* \* \* \*

The Botanical Society exists primarily for the support of the National Botanic Gardens. At the same time, Members and Associates receive certain privileges—the Society's Journal and the Annual Reports of the Gardens are sent free, and the Journal of South African Botany is obtainable at a reduced price. Moreover, the Trustees of the Gardens distribute to Members and Associates, on request, a certain number of packets of seeds, which may be chosen from a Seed List issued annually. The system of distribution has recently been reviewed by the Trustees and by the Council of the Botanical Society, and it has been decided that in future the number of packets of seeds

from Kirstenbosch which may be allotted annually shall be as follows: To Life and Family Members, 30 packets; to Ordinary Members, 20 packets; to Associates, 5 packets. Members paying the additional subscription in support of Whitehill shall, in addition, be entitled to receive 10 packets of Whitehill seeds.

\* \* \* \*

The distribution of plant material other than seeds—*i.e.*, surplus plants, cuttings, bulbs, etc.—from Kirstenbosch has caused a considerable amount of labour and expenditure of time and money to the Gardens. This distribution is not recognised as a privilege to which Members of the Society are entitled, though the Gardens authorities have always taken pleasure in assisting those Members who have on their part rendered special services to the Gardens. Owing to the burden and expense of this distribution, however, it has become necessary to restrict it somewhat; and Members are asked to be moderate in requests of this kind and to be content, as far as possible, with their allowance of seeds.

\* \* \* \*

The Gardens receive from time to time seeds of exotic plants from a variety of sources. During the last year or two these have been included in the Seed List sent out to Members. There has been, however, a relatively small demand for exotic seeds, and it has therefore been decided to omit them from the new Seed List. If any Members, however, are interested to receive occasional packets of such seeds (in addition to the number of South African seeds to which they are entitled as Members), they are invited to communicate with the Director.

\* \* \* \*

We are privileged to publish by authority of Mr. J. D. Keet, Chief of the Division of Forest Management, an article specially written by Mr. E. J. Domisse, of the same Division, on the subject of Nature Conservation. The Forest Department, in charge as it is of enormous tracts of Crown Lands, including water-sheds and catchment areas covered with indigenous vegetation, holds the key to the most important work of nature conservation that can be done in South Africa. Until recently the activities of the Forest Department were almost entirely concentrated

upon the planting of a portion of these vast holdings with exotic timber trees; the remaining portions, much larger in extent, were virtually neglected, leased for grazing, undefended against fire, open to wood-gatherers, flower-pickers and poachers. Their practical use to the country as water-catchments was overlooked, and their scientific and aesthetic value were treated as of no account. Fortunately, a new realisation of the vital importance of nature conservation has awakened, and the Forest Department is now assuming the wider responsibilities of guardian of its non-plantation territory in the public interest. The Botanical Society, in common with other bodies, has repeatedly urged the preservation of the indigenous flora, as far as compatible with progressive and enlightened agriculture and forestry: and Members will read with deep interest Mr. Dommissé's account of the steps being taken by the Forest Department in the direction they have strongly advocated.

\* \* \* \*

Mr. G. W. Reynolds, of Johannesburg, is well known as an indefatigable collector and student of the Aloes. Readers will remember his account of the quest of *Aloe polyphylla* published in last year's *Journal*. This year he is contributing a valuable illustrated account of some of the natural hybrids in which the familiar tree Aloe, *A. Marlothii*, is one of the parents. Hybridisation is well known to occur between Aloes cultivated side by side in gardens; such old-established collections as those at La Mortola and Grahamstown, for instance, being full of the results of interspecific crossings. Mr. Reynolds demonstrates the occurrence of spontaneous hybrids in the wild state, where different species grow in close proximity to one another. Hybridisation is regarded by some botanists as a rare phenomenon and a nuisance from the systematic point of view. Others see in it the origin of variations through which the evolution of new species takes place, and therefore of fundamental importance. Hybrids are well known to exist in well-studied floras, and their existence in South Africa also is becoming more realised as the knowledge of our plants in the wild state becomes more thorough.

\* \* \* \*

Mrs. Coombs made many friends in South Africa and especially at Kirstenbosch when she visited us last year from the United States. It is a pleasure to be able to include on a later page a short account of her impressions of the Gardens. Our habitual attitude is

so apt to be apathetic and take-it-for-granted with regard to our native flora that it is useful and beneficial for us to see it sometimes through the fresh eyes of a visitor. We are delighted that Mrs. Coombs enjoyed her visit, and we hope that she may be able to come again and stay longer.

\* \* \* \*

For the garden-lover some kind of garden library is a necessity as well as a joy and inspiration. Whether it is merely a collection of nurserymen's catalogues or whether it fills an indefinite number of shelves with encyclopedias, works of reference, books on travel, climate, soils, genetics, or practical handbooks, a library is a vital adjunct to the garden. In South Africa we are very deficient in literature relating to gardens, and many people are quite at a loss to know what books can be recommended as a nucleus or foundation of a garden library. For such persons an article in this *Journal*, contributed by Mr. L. B. Creasey, will be found a valuable guide. Mr. Creasey has recently come from England to join the Kirstenbosch staff, and brings with him a familiarity with recent garden literature. His article does not pretend to be exhaustive, but aims at indicating a suitable choice among the vast amount of material available.

\* \* \* \*

The perfect lawn grass for use under South African conditions, whether summer- or winter-rainfall, has not yet been discovered. Imported grasses have been found wanting in almost every instance. For "up-country" conditions, with sharp frosts combined with winter drought, all-the-year-round perfection can hardly be expected. For the Cape coastal belt, however, many indigenous grasses are available, mostly species of *Cynodon*; and these are definitely more suitable under winter-rainfall conditions than any of the imported varieties. At Kirstenbosch several of these grasses have been tested under conditions of summer dryness, hard wear, etc.; some new varieties have been introduced to cultivation and are on trial. The Curator of Kirstenbosch, Mr. J. W. Mathews, contributes an article on the subject in this *Journal*, and Members of the Society who are interested in lawns—and what gardener is not?—will find much to interest them.

\* \* \* \*

Mr. Mathews also contributes a short article on our native Conifers, especially the cypress-like *Wid-*



dringtonias, pointing out their potential usefulness in gardens. Special attention should certainly be paid to *W. Schwartzii*, a beautiful tree of fairly quick growth, yielding a useful and cedar-scented timber, and native in a definitely drought-stricken habitat. For such a tree there should be great possibilities in forestry and gardening in dry localities.

\* \* \*

By kind permission of the Cape Peninsula Publicity Association we are enabled to publish two of the many beautiful photographs of Peninsula scenes which have recently been taken by Mr. J. P. de Smidt, the Assistant Director of Publicity. These are both taken from nearly the same viewpoint, on the Lawn at Kirstenbosch, and represent the two most striking landscape features of the Gardens' noble background, with the Lawn and Pond in the foreground.

\* \* \*

The Journal of South African Botany, for which the Trustees of the National Botanic Gardens are responsible, completed its first volume of four quarterly parts this year. It covers a wide range of subjects of South African botanical interest. It circulates to all parts of the globe by way of subscription and exchange. A number of copies of the first volume are still available, and the first part of Volume II will appear in January. Members of the Botanical Society are reminded that they are able to obtain the Journal of South African Botany at reduced rates of subscription, namely, 15s. per volume. (Single parts, 5s.)

\* \* \*

The Cape Town Wild Flower Shows were discontinued a few years ago, improvement of means of transport making visits to the various country shows easier so that the functions of the Cape Town Show became decentralised; especially as the country towns became less willing to take the very considerable amount of trouble necessary to set up an exhibit in Cape Town as well as one in their own town. This year, in September, however, the Cape Horticultural Society organised a two-days' Show at the City Hall, which was largely devoted to displaying the products of Kirstenbosch and Whitehill, and the proceeds of which were contributed to the two Gardens. The Kirstenbosch display occupied one whole side of the Hall. Whitehill set up a complete rock garden of succulent plants in the centre. There were collections of wild flowers grown in cultivation, decorative classes,

a display from Hermanus, highly attractive floral arrangements, etc. The Show was crowded with visitors on both days, and the whole affair was a great success. In spite of the low admission charges and the somewhat heavy expenses, the Horticultural Society was able to send a cheque for £195 to the National Botanic Gardens; this being allocated as £67 10s. od. to Kirstenbosch and £127 10s. od. to Whitehill. It is understood that the Show may be repeated in future years. The Trustees have expressed their sincere gratitude to the Horticultural Society and the many helpers who so kindly contributed to the success of the occasion.

\* \* \*

The interest taken in South African flowers has increased considerably in recent years. At the International Flower Show, held in New York City in March this year, there was a special section devoted to the South African flora, and while this only provided a small sample of the vast floral wealth of the Union, it was sufficient to produce a great impression. Mrs. Coombs, through whose kindness we are able to reproduce two photographs of portions of this Show, writes: "It was really a beautiful sight. So many of the charming flowers had consented to bloom for the New York Botanical Garden experts that there was a mass of lovely colour. My succulents and the Elephant's Foot made a big hit. All the newspapers wrote them up and as a consequence the exhibit was jammed for the whole six days and I acquired an immense amount of glory and gave numberless interviews. . . . The whole exhibit took two gold medals, one being for "an outstanding contribution to American horticulture." . . . It was no small task for the Botanical experts to bring all those lovely things into bloom at once. It means real expert horticultural knowledge (which they possess). . . . The South African part was a high light of the Show, which altogether covers acres of space. A group of the darling pink Arums, *Rehmannii*, was a great favourite." . . .

\* \* \*

The Editor would be grateful if any Member who happens to have a spare copy of either of the following issues of the Journal of the Botanical Society—which are now out of print—could kindly return it to him, as they are required to make up sets: Part III, 1917; Part VII, 1921; Part XX, 1934.



# Nature Conservation.

By E. J. DOMMISSE.

**F**ORESTS and plant life have been subject to destruction by various agencies such as man, fire, insects, fungi, etc., of which man has probably been the greatest destroyer during the ages. Results have varied in degree. Destruction of forests in particular and plant life in general have been followed by erosion, impoverishment of the land, drying up of streams, silting up of rivers, etc., and to this more than to war has the depopulation of countries and fall of various mighty powers been attributed.

South Africa has been no exception to this, as much of its once magnificent forests such as those of Knysna, George, Eastern Province, Transkei, Natal and the Northern Transvaal have been either totally destroyed or deprived of their former value and grandeur. A need for protection has long been felt, and in 1888 the first Forestry Act was passed in the Cape, and this was followed by various Forestry Acts which now are combined in the Union Forestry Act of 1913. As a result of these Acts, the Department of Agriculture and Forestry now has under its control approximately 1,500,000 morgen of Crown land as Forest Reserves; of this approximately 1,373,000 morgen are forest or veld and practically all of this is on catchment areas, and the extent of forest reserve land is being steadily increased. The Government's policy in regard to all Crown Forest Reserves is to protect them, in so far as the circumstances of the country permit, against trespass by man and beast and to restrict grazing thereon where total prohibition of this cannot be enforced.

Approximately 127,000 morgen of the present extent of the 1,500,000 morgen of Forest Reserves have been afforested and 150,000 to 160,000 morgen are still available for afforestation. There are, therefore, over 1,200,000 morgen or 80 per cent. of the whole forest estate which can be regarded as reserved for all time for the preservation of the indigenous flora and for the protection of catchment areas. The Department has long felt that this is not enough. Something more must be done to preserve for the nation areas which may contain flora of particular

botanic or other interest or areas which may have great aesthetic value. To attain this end the Department has established special Nature Reserves on Forest Reserves, the object for reserving these being:

- (1) The preservation of the scenic beauty of the areas selected with the view to its enjoyment by the people of South Africa and by tourists who may visit this country.
- (2) The preservation of the whole vegetation on the areas for the sake of study by future ecologists, foresters, etc.

The establishment of each Nature Reserve is sanctioned by the Minister of Agriculture and Forestry. After reservation, no exploitation in them is permitted except under special authority. The fauna likewise is protected, no hunting or disturbance of game or birds being allowed.

Besides these specially authorised reservations, other areas, even though of quite limited extent, are also set aside in the course of the formation of the plantations for the protection of veld containing rare or specially beautiful species or features. In addition, where still possible, specially beautiful vistas or areas of botanic interest are left unplanted along the main roads. Plantations also are laid out with the object of enhancing the aesthetic aspect of the scene.

In pursuance of this policy there has been to date set aside on Forest Reserves an aggregate extent of 5,874 acres as Nature Reserves. On the suggestion of Professor Compton, Director of the National Botanic Gardens at Kirstenbosch, who takes a considerable interest in this phase of the Department's activities, this area will be considerably increased as steps are now being taken to select suitable reserves at Hangklip or elsewhere in the rich floral district of Caledon, in the Cedarbergen, the well-known Montagu and Robinson Passes, as also in the Tzitzikamma Mountains in the Humansdorp district. Besides these, the Department is also establishing Nature Reserves in the Woodbush Forests near Tzaneen, at Entabeni, in the Zoutspansberg, approximately 40 miles from the beautifully situated town of Louis Trichardt, as well as in

the much-frequented Mitchell's Pass, in the Ceres District, and at Kluitjeskraal, near Wolseley station, in the district of Tulbagh, famous for its heaths, proteas, etc.

A few years ago, the Department was very fortunate to obtain for the nation the famous old Jonkerhoek farm, near Stellenbosch, which nature has so richly endowed with magnificent scenery and flora. Whilst the Department's main object on this reserve will be the production of timber, other subsidiary but equally important objects will be the preservation of the flora and the protection and conservation of the water supplies on the very important catchment area of the Eerste River, the headwaters of which rise on Crown land adjoining. In addition, a very important and much-needed Forest Research Station will be established here. Such important questions as the relationship of forests to climate, water and erosion will be closely studied. Situated as it is near the two famous southern universities of Cape Town and Stellenbosch, this Research Station will be of immense educational value to the country as a whole.

Selected areas of veld will be set aside as Nature Reserves, arboreta of both indigenous and exotic trees established and indigenous species encouraged. Forestry and nature conservation must go together hand in glove.

A similar policy is aimed at in the Government plantations generally. Arboreta or stands of particular scientific or other interest will be excluded from exploitation. These in the future will be monuments of what can be done in this sunny country of ours.

As in America, Switzerland, Germany and many other of the older countries, the important question of setting aside areas, whether they be in forests, veld or plantations, for the recreation of the nation has not

been lost sight of. Such areas are being opened up near the larger towns to the public, where circumstances permit.

The fauna is also protected in forest reserves. Shooting is either controlled or totally prohibited, whilst in special instances whole plantations, forests or portions of forests are declared as game sanctuaries. The country must preserve its fauna for posterity. To this important phase of nature conservation, the Department, although on a small scale, also contributes its share.

The conservation and the protection of its natural fauna and flora are very much appreciated in certain parts of the country, and by certain sections of the population, but it is unfortunate that this is not as yet universal in South Africa, as instanced by the wanton destruction of nature in certain areas. Here public opinion must be educated as to the value of the preservation of its most important natural resources. Such bodies as the Wild Flower Protection and Publicity Societies, Farmers' Co-operative Unions, etc., have done sterling work in this direction, but much is still to be done. This work of educating the public must, and I am certain will, be continued by all concerned.

The Department is aiming at making these special Nature Reserves the playground of the nation, as with the National Parks in America. Much leeway is still to be made up, but the nation will no doubt in time regard these as its special preserves, where it can enjoy undisturbed the copious bounties of nature.

Division of Forestry,  
Department of Agriculture and Forestry,  
Pretoria.

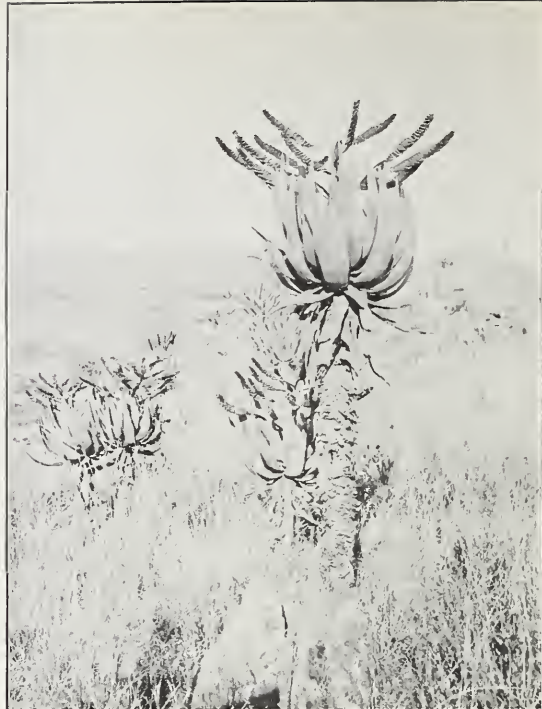
November, 1935.







956. *Aloe Marlothii*. A Johannesburg form, 5/9/34.



1448. *A. Marlothii*. A form with compact rosette, near Badplaats, Carolina Dist., 14/7/35.



770. *A. Marlothii*, height 24 feet; 28 miles north of Middelburg, 7/7/35.



1363A. *A. Marlothii*. Snits Drift, North Transvaal, 26/5/35.

Photos: G. W. Reynolds.

# Aloe Marlothii, Some Forms and Hybrids.

By G. W. REYNOLDS.

THIS stately, attractive species is one of the most interesting of our South African Aloes, not only on account of the large variety of forms which occur, but also for the remarkable number of natural hybrids it produces. *Aloe Marlothii* was first described in 1905 by Alwin Berger (Engl. Bot. Jahrb. XXXVIII, 97) and again in 1908 (Das Pflanzenreich, p. 312) being named after the late Dr. R. Marloth, from material collected by him at Lobatsi, Bechuanaland, and Klip River Hills, Johannesburg. From Berger's account it appears that the flowers were described from Johannesburg plants, and the remainder of the description from those at Lobatsi. This species has since been found to occur abundantly almost throughout the Transvaal, and is plentiful in the Witwatersrand, Pretoria, Rustenburg, Groot Marico, Waterberg, Zoutpansberg, Pietersburg, Middelburg, Lydenburg, Barberton and Carolina districts. I have not noticed the species in the South-Eastern (Heidelberg-Volksrust) or South-Western (Wolmaransstad-Christiana) portions of the Transvaal. It is found in the highlands of Swaziland, extending Southwards into the Vryheid district of Northern Natal.

In the Natal Midlands, and most parts of Zululand, one finds *A. ferox* Mill. (and the var. *xanthotachys* Berg) a species very closely related to *A. Marlothii*, and one which, at times, could easily be mistaken for it. In some localities it is by no means a simple matter to separate them, so it might be advisable to mention some points of difference. Both occur with leaves copiously spiny both sides, and forms of both are found with leaf surfaces entirely smooth, so the leaves are not always a reliable means of identification. Again, the angle of the racemes, and the colour of flowers, varies so considerably in both that these characters also do not provide an infallible guide. In *A. Marlothii* the racemes are narrower, longer and more horizontally disposed, while in *A. ferox* they are broader, shorter and sub-oblique to sub-erect. In the former the flowers are markedly secund, less so in the latter. I cannot recall ever having noticed *A. Marlothii* with more than one inflorescence, whereas *A. ferox* frequently produces two, three and even four inflorescences, each

with 6-12 racemes. The inner segment apices in *A. ferox* are more revolute, and usually dull to glossy black tipped, while in *A. Marlothii* they are more spreading than revolute, and mostly deep purple tipped, the purple edging extending for about 10 mm. down the margins.

*A. Marlothii* usually develops a stem of 6-15 feet, with the remains of old dry leaves adhering; the form at Smits Drift, 25 miles east of Pietersburg, North Transvaal (see photo 1363A) closely resembles the typical form at Lobatsi, and seems to be the most frequent in the Zoutpansberg and Pietersburg districts. The tallest stems known to me occur in the Middelburg district, and some must be seen to be believed. Photo 770 was taken near Diepkloof, about 28 miles north of Middelburg, and represents a very old specimen no less than 24 feet in height. Forked stems are exceedingly rare, but one such can be seen at Smits Drift, near Pietersburg.

Leaves vary from copiously spiny to entirely smooth both sides; specimens of the former occur along the northern slopes of the Witwatersrand ridge, especially in the vicinity of Johannesburg, while at Bynest Poort, about 20 miles north-east of Pretoria, near Barberton and elsewhere, plants are found with leaves entirely smooth both sides, only the margins being armed with prickles. Usually the lower surface is more spiny than the upper. The size of the leaves varies: in some localities they reach as much as six feet in length and 12 inches wide at the base, while colour of prickles varies from brown to red. As regards rosette and set of leaves, special reference should be made to an unusual form in the Carolina district, about 10 miles east of Badplaats. It will be noticed from photo 1448, which was taken at that locality, that the leaves are almost arcuate-erect, and form a much more compact rosette than the spreading and somewhat recurved leaf forms elsewhere.

Only one inflorescence appears, but the number of racemes varies considerably. The Johannesburg form is one of the least branched, with usually 8-12 racemes only (see photo 956), while the most branched forms known to me grow in the Northern Transvaal



where plants can be seen with 30, 40 and even 50 racemes. Photo 1522A was taken on the Chunes Poort road, six miles south of Pietersburg, and illustrates an inflorescence bearing no fewer than 51 racemes. Flowers vary in colour from lighter tints to deeper shades of orange, but mention must be made of an outstanding colour variety with greenish-cream flowers at Pretoria North, and Hennops River near Pretoria. Dr. Elbrecht has this unique colour form in cultivation in the Pretoria University Gardens, where they flower usually in August.

A character worthy of mention, found in many Aloe flowers, very marked in those of *A. Marlothii*, and one which, so far as I can recall, has not been mentioned in any Aloe description published hitherto, concerns the structure of the stamens and projection of the anthers. An examination of the flowers reveals that the six filaments are flattened, but the three inner are narrower than the three outer, while they lengthen and their anthers dehisce in advance of the three outer. In fact, the three outer are not fully exerted, nor shed pollen, until the three inner have dehisced and commenced drying, hence pollen is shed in two distinct stages. Photo 1363 shows flowers of the Smits Drift form in their different stages of development, and it illustrates, *inter alia*, the narrow inner filament longer than the broader outer one.

A very distinct variety, and one to which I intend according varietal rank,\* occurs in warm valleys near Barberton. This variety is undoubtedly the handsomest form of all, and differs by having bright scarlet buds and greenish-cream, almost ivory coloured, open flowers, giving the raceme a very pleasing bi-coloured effect. In leaf, this variety is much less spiny, it sometimes occurs with smooth leaves, while the prickles are much redder than usual. It is plentiful on a low kopje eight miles north-west of Barberton, and appears to be confined to the Barberton district.

#### NATURAL HYBRIDS

Among the biological sciences, the study of heredity occupies a prominent position, and although we may approach the study of genetics from so many angles, it is especially in its bearing on the problem of evolution of species that so much has been accom-

plished and so much remains to be done. The subject of hybrids is one of absorbing interest, but it presents so many tricky problems that one must needs tread very warily on such dangerous ground. It may be asked how one knows that a particular plant is a hybrid and not a distinct species. This question cannot be answered with any degree of certainty, unless one has conducted one's own experiments in crossing the species; as a result of segregates breeding pure, the hybrid of to-day might propagate a species of to-morrow. If, however, one is in a locality where two Aloe species flower at the same time, and one notices among them an odd-looking plant which exhibits characters of both species, then, to my mind, it is not unreasonable to assume it to be a first generation cross of those two species. Before dealing with the hybrids of *A. Marlothii*, very brief reference must be made to Mendel's Principles of Heredity. Mendel conducted various experiments with the edible Pea (*Pisum sativum*). He crossed a dwarf with a tall variety, the cross bred seeds thus produced grew into plants which were *always tall*: such a cross bred, the first filial generation, he called F<sub>1</sub>. From the fact that the character *tallness* appears in the cross to the exclusion of the opposite character, Mendel called it a *dominant* character, while *dwarfness*, which disappears in the F<sub>1</sub> plants, he called *recessive*. The tall cross-breds bore seeds by self fertilisation. When this generation (F<sub>2</sub>) grew up, they proved to be a mixture averaging three tall to one short, or in other words, 75 per cent. dominants to 25 per cent. recessives. Further generations do not concern us here, except, perhaps, to mention that the F<sub>2</sub> recessives, self fertilised, always bred pure recessives only. Whichever way the species are crossed, the hybrid has the same characters.

From the hybridising aspect, *A. Marlothii* is probably the most outstanding among the Aloes; it crosses with the smallest as well as the largest, and there are definitely at least fourteen Aloe species with which it crosses naturally in the wild state. Unfortunately space does not permit of detailed analysis of these hybrid characters, nor for publishing more than six illustrations, which we will deal with first.

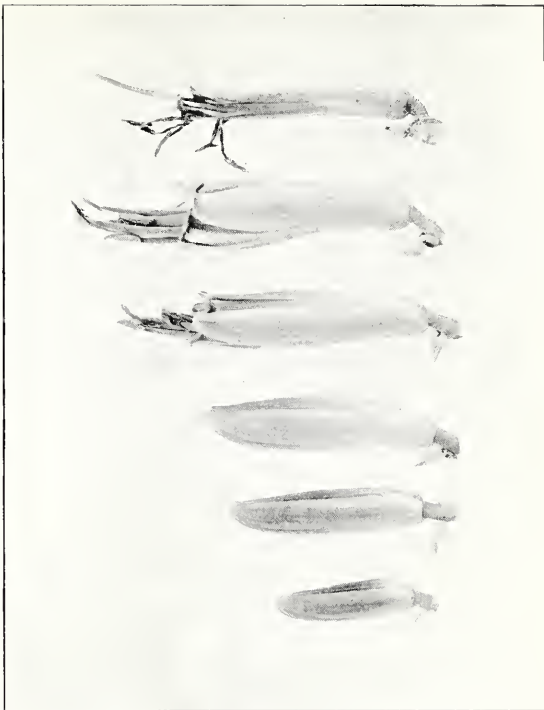
1. *A. Marlothii* × *A. Davyana*, Schonl. Photo 953 is of a plant collected on Linksfield Ridge, Johannesburg, flowering in my garden 5/9/34. There are several crosses at this locality. It also occurs in the Klip River Hills, South of Johannesburg; it has

\* It is intended that the description of this variety will be published in vol. II of the "Journal of South African Botany", as var. *bicolor*.





1522A. *A. Marlothii*, with 51 racemes, near Pietersburg, 10/8/35.



1363. *A. Marlothii* flowers, natural size from a plant at Smits Drift, 26/5/35.



1522. *A. Marlothii*  $\times$  *A. Greatheadii* near Pietersburg, 10/8/35.



953. *A. Marlothii*  $\times$  *A. Davyana* flowering in Johannesburg, 5/9/34.

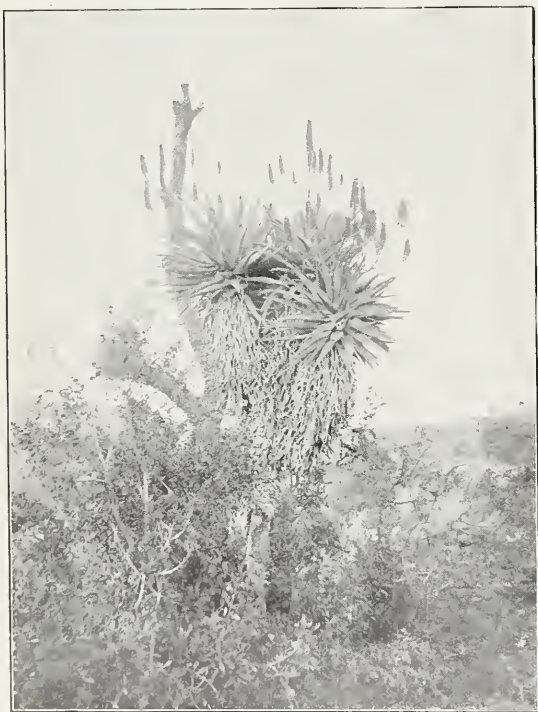
Photos: G. W. Reynolds.



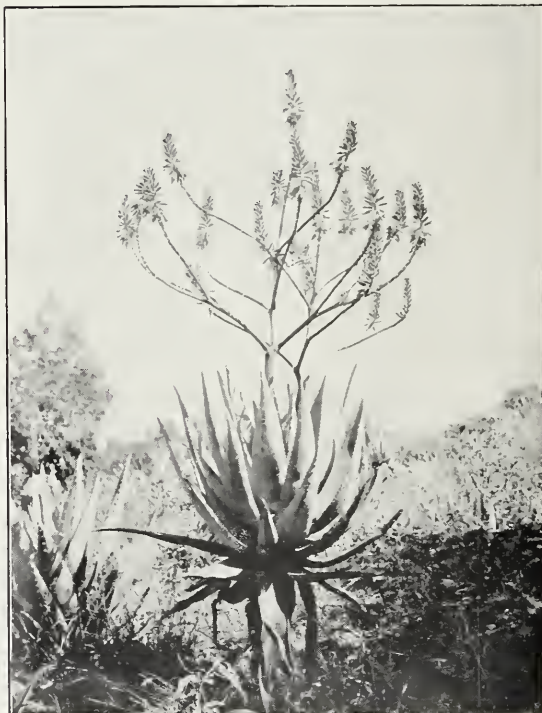
1366. *A. Marlothii* × *A. aculeata* flowering at Smits Drift, 26/5/35.



1310. *A. Marlothii* × *A. castanea*, Lydenburg District, 11/5/35.



1315. *A. Marlothii* × *A. arborescens* near Rustplaats, Lydenburg Dist., 11/5/35.



1268. *A. Marlothii* × *A. rubrolutea*, from Molopolole, Bechuanaland.

Photos: G. W. Reynolds.



been collected by Mr. J. C. Knobel near Zeerust, and by Mr. J. C. van Balen at Mooiplaas, Hennops River, 17 miles north-west of Pretoria. Characters nearer *A. Marlothii* are size of leaf and rosette, divaricate branching; characters nearer *A. Davyana* are smooth spotted leaves, erect racemes with flowers evenly distributed (not secund); forms with leaves spiny appear to me to be F2.

2. *A. × A. Greatheadii*, Schonl. Photo 1522 was taken six miles south of Pietersburg (Chuncs Poort road) of a plant flowering 10/8/35. *A. Marlothii* can be noticed in the background, with the other parent on immediate right of the cross. At this locality there are several crosses of various generations, but the plant illustrated seems to me to be F1. Characters nearer *A. Marlothii* are stem, size of leaf and rosette, while characters nearer *A. Greatheadii* are smooth spotted leaves, erect capitate racemes, with flowers evenly distributed. This cross has also been collected among both parents at Smits Drift, 25 miles east of Pietersburg.

3. *A. × A. aculeata*, Pole Evans. Photo 1366, a fine specimen just east of Smits Drift, flowering 26/5/35. At this locality there are many such crosses, with mixed characters varying from no stem and large rosette to tall stem and smaller rosette, but in them all the racemes are erect, and flowers evenly distributed. In the plant illustrated, characters of *A. Marlothii* are the six foot stem, size of rosette and branching of the inflorescence, while *A. aculeata* characters are erect racemes, flowers evenly distributed (not secund). Mr. L. R. Vogts records this cross from "Groenvlei" between Nylstroom and Naboomspruit, while Mr. J. C. van Balen has it from Tiger Poort, north of Nylstroom.

4. *A. × A. castanea* Schonl. Photo 1310 was taken five miles east of Rustplaats (about 25 miles north-east of Lydenburg, on the Pilgrims Rest road) and is one of several such crosses there, flowering 11/5/35. *A. Marlothii* characters are simple stem, size of rosette, and branching of the inflorescence; *A. castanea* characters are erect racemes with flowers evenly distributed. Judging from the spiny leaves I am not inclined to regard this plant as F1.

5. *A. × A. arborescens* Mill. Photo 1315 is of a fine specimen about four miles east of Rustplaats (24 miles north-east of Lydenburg), flowering 11/5/35. Characters nearer *A. Marlothii* are large rosette, mar-

ginal prickles, and divaricate branching of the inflorescence, while *A. arborescens* is reflected in general habit of growth, branched stem, leaf surfaces smooth, erect conic racemes, with flowers evenly distributed. I have also collected this handsome cross in the Elands Valley between Waterval Boven and Waterval Onder, East Transvaal; it is also plentiful on the Southern slopes of the Zoutpansberg, five miles north of Louis Trichardt, North Transvaal. Usually, the general habit of growth is nearer that of *A. arborescens*, but occasional plants occur in the Zoutpansberg with a tall simple stem. The branched inflorescence is similar in both forms.

6. *A. × A. rubrolutea* Schinz. Photo 1268 is of a particularly handsome specimen, collected by Mr. J. C. Knobel near Molopolole, about 30 miles west of Gaberones, Bechuanaland, and flowering on his kopje in Zeerust. Characters nearer *A. Marlothii* are size of leaf and rosette, inflorescence divaricately branched; *A. rubrolutea* characters are smooth leaves, two inflorescences, erect racemes with flowers evenly distributed.

7. *A. × A. barbertoniae*, Pole Evans. Collected by Mr. Joe Thorncroft near Sheba, Barberton district, and by myself 8 miles north-west of Barberton, flowers in June. This cross, which has the bi-coloured raceme form of *A. Marlothii* as the one parent, has large rosette, leaves obscurely spotted, wide branching of the inflorescence, cylindric-conic erect racemes, flowers evenly distributed.

8. *A. × A. Dyeri*, Schonl. Collected by myself at Rose's Creek, Barberton. Flowering June, 1935. Characters nearer *A. Marlothii* are large rosette, widely branched inflorescence, orange flowers, while those nearer *A. Dyeri* are smooth leaves, obscurely spotted, erect racemes, flowers evenly distributed.

9. *A. × A. sessiliflora*, Pole Evans. Reported by Mr. J. C. van Balen, who has photographed specimens at the Causeway, Komati Poort, flowering September, 1934. Also collected by myself in Wylies Poort, Zoutspansberg, not flowering. From Mr. van Balen's photograph, characters are large rosette, widely branched inflorescence, cylindric racemes with flowers evenly distributed.

10. *A. × A. petricola*, Pole Evans. Reported by Mr. J. C. van Balen as occurring between Nelspruit and Barberton. I have not succeeded in locating this cross in this area myself and cannot state characters.



11. *A. × A. globuligemma*, Pole Evans. Collected by Mr. J. C. van Balen and myself between Schoonoord and Malips Drift, Secocoeniland, flowered at Union Buildings, Pretoria, in July, 1935. A very handsome plant with large rosette, oblique racemes and second flowers.

12. *A. × A. Pienaarii*, Pole Evans. Collected by Mr. J. C. Knobel on farm "Enzelberg," 22 miles north-east of Zeerust, in association with both parents. I have not seen flowers and cannot state characters. This cross might also occur near Smits Drift, Pietersburg district.

13. *A. × A. Wickensii*, Pole Evans. A large specimen collected by myself at the Chunes Poort Police Post, 28 miles south of Pietersburg (type locality of *A. Wickensii*), a solitary plant growing among both parents, flowered in my garden during September, 1935. In this cross also the rosette is large, with smooth leaves, racemes are conic, erect, and with flowers evenly distributed.

14. *A. × A. Angelica*, Pole Evans. Several specimens of this very handsome cross occur on farm "Wallacedale," 10 miles north of Louis Trichardt, in the Zoutpansberg, where they flower usually in May-June. Characters nearer *A. Marlothii*: large rosette, divaricate branching of inflorescence; *A. Angelica* characters: recurved channelled leaves, inflorescence widely branched, racemes erect sub-capitate, flowers evenly distributed and with upturned mouth.

15. I must mention a plant collected in the Zoutpansberg, seven miles west of Mseguas Poort, then in fruit, growing among *A. Chabaudii*; from the characters exhibited the one parent is *A. Chabaudii* but I am doubtful as to whether the other parent is *A. Marlothii* or *A. aculeata*.

In an endeavour to work out dominant and recessive characters in *A. Marlothii* hybrids, I feel that when one solitary cross is found growing among two flowering species, it can reasonably safely be regarded as *F*<sub>1</sub>, and I have made a particular point of carefully studying and recording the characters exhibited by such crosses. If, however, one sees several crosses with obviously mixed characters, one has no means of ascertaining whether the original *F*<sub>1</sub> cross

was self-fertilised, or whether the pollen was carried from either of the parents, hence for my purpose I have felt it safer to ignore any mixed patches.

As a result of these investigations, it seems to me that dominant characters of *A. Marlothii* *F*<sub>1</sub> crosses are development of stem with old leaves adhering, rosette large and nearer *A. Marlothii* in size, and divaricate branching of the inflorescence. Recessive characters which might appear in *F*<sub>2</sub>, or at least characters which are not present in *F*<sub>1</sub>, are spiny leaves, oblique racemes, and second flowers. The only cross in which I have noticed oblique racemes and second flowers is *× A. globuligemma*, but when *A. castanea* crosses with *A. globuligemma*, what appears to be *F*<sub>1</sub> has oblique racemes and second flowers, which points to these being dominant characters in *A. globuligemma* crosses; hence these characters appear in the *A. Marlothii × A. globuligemma* cross. With this one exception (which I think has been satisfactorily accounted for), in all crosses of *A. Marlothii* known to me the racemes are erect and flowers evenly distributed, never second. In crosses with species having spotted leaves (*A. Davyana*, *A. Greatheadii*, etc.) the hybrid usually has leaves obscurely spotted. As regards shape of racemes, *A. Marlothii* crossing with a capitate racemed species (*A. Greatheadii*) usually produces a capitate or sub-capitate raceme, and when crossing with species having longer cylindrical racemes (*A. Barbertoniae*, *A. Dyeri*, etc.) the hybrid has cylindric-acuminate racemes. In crosses with smooth leaf species, the hybrid has leaves smooth or exceedingly sparingly spined. One point remains to be mentioned, crosses are fertile and under favourable conditions not only do they cross with a third species, but can hybridise with the cross of two others.

Collectors discovering a "new species" will thus realise how very important and necessary it is to study its characters and associates carefully. When sending material to Gardens or Herbaria, if they will also record their observations and deductions, then this article will not have been written in vain.

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Parkview,  
Johannesburg.

# Lawn Grasses on Trial at Kirstenbosch.

By J. W. MATHEWS.

THE importance of good lawns and grass plots in the gardens of this country cannot be overestimated. Their value is even greater than the famous lawns of countries with cooler and moister climates; conditions which are naturally favourable to the production of a fine turf or sward.

There, their cultivation and the best mixtures of grass seeds for particular soils and conditions are readily obtainable. Fine lawns are quickly obtainable from seeds, and to a lesser extent with turves from suitable pastures, which produce an immediate effect.

Trials of these imported seeds have been made at the Cape from the start of gardening down to the present time. Their failure has been general, and back in the nineties of the last century the local grasses, Coarse Quick and, occasionally, Fine Quick, were being used.

It is interesting to recall the only traces of these trials seem to be an occasional patch of the "Meadow Poa" of England (*Poa pratensis*), or as it is known in the United States, the "Kentucky Blue Grass." The dark green of a patch of this was very noticeable in the lighter green of a Coarse Quick lawn in Parliament House grounds. Last summer the distinctiveness of a lawn under the shady oaks at Paarl elicited the information that its source was the patch at Parliament House. It also occurs in the Camphor Avenue at Kirstenbosch.

Of recent years quite a number of grasses native to the Union have been introduced to cultivation with more or less success. Owing to great differences in the climatic conditions throughout the Union it is as well to recognise that the grasses from the summer rainfall areas differ somewhat from those local to the winter rainfall areas. At the Cape the last respond better to all-the-year-round cultivation than the others, which grow and look well throughout our summers, but become brown and unsightly during the winters.

According to the habit of growth lawn-grasses can be divided into three distinct groups.

First—those of a tufted or short-spreading habit of growth. Second—those spreading by surface

runners only. Third—those with underground suckers and, usually, with surface runners as well.

Tufted native kinds are yet untried, but the condition in the wild of several is very promising. "Germiston," as grown at Kirstenbosch, is of a decided tufted habit, although it has short underground suckers. "Kentucky Blue" is a good example of tufted.

Owing to their short growth the native tufted kinds are only likely to come into general practice when seed is readily and cheaply available.

At the present stage of progress, and the general practice of cultivation by runners and rooted pieces, the surface rooting kinds are of the greatest importance. Quite a range of distinct grasses is available. From summer rainfall areas—Magennis\* (*Cynodon sp.* or perhaps a hybrid), Transvaal Bradley (*C. Bradleyi*), and Beaufort West grass (a *Cynodon sp.*, as yet undetermined). From the winter rainfall areas—Cape Bradley (*C. Bradleyi*, var.), Coarse Quick, (*Stenotaphrum secundatum*), and the Modderfontein grass (*Cynodon incompletus*, or a var.).

Underground suckering kinds are: Kikuyu, (*Pennisetum clandestinum*); Fine Quicks, Princess Vlei, Montagu, Harrismith, etc. (*Cynodon dactylon*, or vars.); and the Florida grass (*C. transvaalensis*).

For our purpose the members of the last group are furthest from the ideal lawn grass. The most aggressive, as well as the most expensive, both to

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\*Mr. W. B. Magennis has kindly supplied the following note on the origin of Magennis Grass: "In August, 1920, when Magistrate of East London, I planted a fairly large section of Florida Grass from the Transvaal in the Residency Garden at East London. The Florida was allowed to grow naturally and seeded—not having been cut. In the fence adjoining the Florida, and along the sides of the road outside, the East London Kweek grass grew profusely and seeded. Pollination of the Florida by the East London Kweek must have taken place for in 1922 a seedling appeared amongst the Florida. This seedling grew rapidly and soon a small lawn was planted with it. This grass has the fineness of the Florida with the vigour of the Kweek. In 1923 I took a few rootlets to Kimberley. It thrived, and Mr. Sharwood of the Kimberley Bowling Club became interested in its possibilities for Bowling Greens and called it the Magennis Grass. A green was in course of construction at Wesselton and half of this green was planted with it. Its success was phenomenal. Since then many greens have been planted with this grass. It seems particularly adapted to the Northern Provinces."



establish and to maintain in the garden, is the Kikuyu. It must be kept in bounds with strips of galvanised iron sunk into the ground, with wide overlaps, or the ends soldered. When growing freely it must be mown twice a week, and to keep it fresh and green must be watered freely. These characters, and its lush green colour, make it more suitable for the quadrangle and paddock than for a private or flower garden.

All the Fine Quicks must also be enclosed within galvanised iron to prevent encroachment into flowerbeds and borders by their underground suckers. Otherwise their blue-green colour, good growth and narrow blades make a fine turf with a good pile. It is from the best forms and varieties of the Fine Quicks that satisfactory grasses for bowling greens and cricket pitches are being found. They stand hard wear better than all the others.

As a class the Transvaal and up-country grasses are too small in leaf and fine in growth to make a good mat with an appreciable pile or nap. To my mind the best is the Magennis grass. It is a delight in summer but shabby for some months in our Western Province winter. The Beaufort West grass is short and fine and eminently suitable for the crevices of crazy paving and flagged paths. It has found favour in the United States, where it is being propagated as fast as possible.

The essential characters of a good lawn grass are: It must be perennial and evergreen, and so presentable all the year round. Blades of the leaf long, narrow, ascending, and fairly firm in texture. Growth tufted or close jointed, and surface spreading only. As for colour, it may be thought that colour plays no part in lawn grasses but in over 20 kinds or varieties in cultivation at Kirstenbosch scarcely any two are alike. There are shades of light or lush greens, blue greens, yellow greens, and olive greens. In the sunk-garden lush and yellow greens are certainly out of place, and in the flower or rose garden the blue or olive greens decidedly show up the flowers and foliage to the best advantage. Darker greens do not lessen depth or shorten the perspective, but enhance them.

The final selection of a grass of course rests with the owner. Up to the present, when cost, either in the production of a lawn or in its upkeep, is a vital consideration, then Coarse Quick must have full consideration. It is the most economical in every way: is a good dark green all the year round, with a minimum

of watering and feeding: is hardy, and quickly makes a good cover, and what is very important, a neat edge or verge is easily maintained. Its one and only fault is its coarseness.

It is cosmopolitan in distribution, occurring in India, Africa, America, and Australia. An Australian authority describes it as "admirably adapted for forming garden edges, and for establishing a green sward or lawns much subjected to traffic. It keeps in the hottest and driest regions of Central Australia. It endures also some frost."

In the United States it is known as St. Augustine's grass. An authority there says: "It is one of the most valuable lawn grasses for the extreme south. It will grow on almost any soil, and thrives even in shade—is particularly good for house lots and lawns. It does not need as much water as Bermuda grass."

The Bermuda grass is our Fine Quick (*Cynodon dactylon*), and is even more widely spread over the globe than the Coarse Quick.

Experience at Kirstenbosch has borne out these results. Some years ago paths in the Protea and Heath gardens were trenched, and about two miles planted in stretches with Coarse Quick, Transvaal Bradley, Florida, Magennis, Germiston, Swaziland (*Axonopus compressus*), and several Fine Quicks from various localities.

Swaziland has made little growth, and is as coarse as Coarse Quick. Germiston has been a poor best of the up-country kinds. Fine Quicks have not matted well, although not dying out. The Coarse Quick has done well, certainly far and away the best and only satisfactory one. For the grower outside an urban supply of water it has proved the best lawn grass up to the present, the hardiest and best drought-resistant.

In the early stages these trials were conducted without manure or fertiliser, and at all times without watering, except once at planting. For the last few years a complete fertiliser or Capex Weed-killer has been used about September of each year, followed by a top dressing of virgin soil during the summer months. The response to this treatment of the Coarse Quick has been much more satisfactory than with any of the others.

In September of 1934 a small quantity of a potential lawn grass was collected on a dry, sandy and stony bank at Modderfontein, in the Citrusdal valley.



This was planted on 4 or 5 square yards of the black alluvial soil in the Orchard. It grew freely without any attention, and on replanting this winter yielded enough for about 50 sq. yds., planted closely in rows 4 inches apart. Now, in November, it is covering well, and has developed surface runners up to 2 ft. in length along the edges.

In addition to all the good qualities of the Coarse Quick, it has the added attraction of a longer and narrower blade that is likely to give the velvety turf so much desired. The texture is a little soft, but as it seems very hardy this may not be a defect. Provided latent defects do not appear under extended cultivation it should meet the requirements of a popular desire for a finer, more cushiony grass.

Investigation of available flowering specimens proves this to be, or something very near to, *Cynodon incompletus*. In a publication on Lawns and Lawn-making, by the Division of Botany, it says of the Regte Kweek (Cape Province) *Cynodon incompletus*: "A surface creeping grass of the coastal districts of the Cape that resembles very much the Transvaal Kweek (*Cynodon hirsutus*), but is less hairy and a deeper green in colour, the flowering culm is usually longer and the creeping stems are light green or yellowish, not red. Like *C. hirsutus* it is not a deep-rooted grass."

Mr. Alexander, Grahamstown, states that: "It has been used for grass patches on various farms in the district, and does well, but does not have the same effect as *Cynodon dactylon*."

The Cape Bradley, like the last, has not been extensively tried. It was first found on wet ground beyond Durbanville, and later was found in wet ground along Ottery Road, below Wynberg. No doubt to keep it in good condition in ordinary soil it will require watering freely. The blades are short and rather flat, and do not produce a pile, rather a nap when it has

become closely knit. So far it has wintered well, and should gain its devotees.

These three kinds differ in effect and appearance, and provide a choice for varying conditions. Used separately in various parts of a comprehensive garden they would assist materially in creating distinctive features. Coarse Quick is, and Modderfontein promises to be, one of the best for dry soils, although both will naturally continue growing, and in better condition, if watered freely throughout the summer. The Cape Bradley will be at its best with the least attention in moist, sandy alluvial soils. Under the usual garden conditions watering will doubtless be necessary.

Quite recently another promising dark-green tufted grass has been collected. It has been identified as, or near to, *Brizopyrum oblitterum*. It does not sucker underground, but increases freely round the tufts, and by stolons or runners which produce plants only at the tip. If it proves satisfactory it may be the first to be cultivated from seeds, as flower heads are produced very freely.

We cannot entirely ignore exotics as the Kentucky Blue is worth growing for shady places on rich light soils in moist valleys. Seeds are procurable cheaply, and, sown thickly, will quickly make a fine turf. It is very hardy and drought-resistant. On dry soils it must be watered freely throughout the summer.

*Lippia reptans* is not a grass but makes a distinct and useful ground cover that can be put to advantage in various sections of the garden. It cannot take the place of a good lawn grass, although it is used and recommended as such in Australia and the United States. It thrives in ordinary garden soil with a minimum amount of watering and feeding.

Kirstenbosch,  
November, 1935.

# How to Form a Garden Library

By L. B. CREASEY.

**I**NTERWOVEN with the desire to grow plants there is the need for a means of reference and study, but the selection of the most suitable books requires careful thought and deliberation.

The average garden library commences in a growing accumulation of catalogues and periodicals. The value of both cannot be over-estimated. Catalogues issued by the foremost seedsmen, and by specialists in particular groups of plants, keep us abreast of the latest introductions to commerce, while sundriesmen's lists are frequently needed at a moment's notice.

At least one periodical is essential if we are to keep in touch with the progress of horticulture. Since 1841 the "Gardeners' Chronicle" has been the leading English gardening paper, providing weekly information of a practical nature, notices and reports of current events, details of the newer plant introductions, and aiming at technical accuracy rather than the purely popular presentation dispensed by several other weekly papers.

Among monthly publications we must include our own "South African Country Life," which contains excellent gardening and fruit-growing articles based upon South African conditions. The "Gardeners' Chronicle of America," which also appears monthly, is the official organ of the American National Association of Gardeners. Handsomely produced, it contains a judicious blending of the popular and the technical aspects of gardening. The "Journal of the Royal Horticultural Society," published in London every month, gives us practical articles, results of trials and of research work, and details of the activities of that great organisation.

The "New Flora and Sylva" is an English quarterly journal noteworthy for its fine photographic illustrations and articles on the culture of choice plants. "Landscape and Garden," also issued quarterly, is associated with the Institute of Landscape Architects, and has for its theme the planning, laying-out and planting of gardens, large and small. While the selection of plants is mainly applicable to English gardens, the numerous photographs, plans and constructional details are also of value in other countries.

There are many more periodicals, but this list must conclude with the delightful annual numbers of "The Studio," each of which is devoted either to gardening in general or to some particular phase of the craft. An outline of the subject is coupled with scores of beautiful photographs of world-wide interest.

The books of a garden library fall into three main sections, comprising those dealing with (a) the culture of plants (b) the planning and construction of gardens, and (c) the sciences related to horticulture.

The difficulty in selecting books on culture lies not only in their varying degree of accuracy, but also in the fact that most of the books available have been written for use in England or America. In South Africa we have our own peculiar conditions of climate and season, spread in various forms over an immense area of country. Even so, there remains a large number of English and American books the contents of which can, either with or without modification, be applied to our local conditions. Fundamental principles are the same everywhere. While the ultimate composition of a garden library depends to some extent upon the plants in which the owner is particularly interested, the purchase of books should in the first instance proceed along a line which will assist the reader to secure a solid foundation based upon the principles underlying sound practice. Thus, the first books should be of a general character, covering the vast range of gardening in an encyclopaedic form.

R. Thompson's "Gardeners' Assistant," published in 1859, revised by Wm. Watson in 1907, is in 6 volumes with over 1,300 illustrations. Of similar character is Nicholson's "Illustrated Dictionary of Gardening," also in 6 volumes with the 1900 Century Supplement. These older books are valuable for their frequent reference to plants which have now passed out of cultivation, but which may some day be re-introduced.

However, the modern gardener needs something more up-to-date. A great favourite is the single volume of Johnson's "Gardeners' Encyclopaedia," an old book now revised and brought up to 1917 by Fraser and Hemsley. Although certain sections re-

quire further revision, it is very comprehensive and its price is reasonable. The finest reference book to-day is Dr. L. H. Bailey's "Standard Cyclopaedia of Horticulture," a massive American work originally published in 6 volumes, but now also obtainable in a thin-paper 3-volume form, the last edition appearing in 1933, with over 4,000 illustrations and containing an astonishing amount of cultural and technical detail. In probably equal demand is Bailey's "Manual of Cultivated Plants," published in a single volume in 1924. The same author's latest book of this type is "Hortus," an encyclopaedia of plants now in cultivation in America.

There are many general books on gardening which are semi-encyclopaedic. Over 12 years ago I secured "Practical Gardening for Pleasure and Profit," edited by W. P. Wright and published in 6 volumes. This covers the culture (in England) of flowers, fruit, and vegetables, the various sections being written by many noted experts. Of great importance is the first volume, which deals very fully with the fundamental principles underlying good gardening.

Among newer books written primarily for beginners we have "The Complete Book of Gardening," by J. Coutts, A. Osborn and A. Edwards, beautifully and copiously illustrated and running to nearly 800 pages. The first-named author later produced the inexpensive "Everyday Gardening," followed by a still smaller book, "All About Gardening." All three books have practical preliminary advice on soils, manures, draining and levelling, constructional work and garden operations, and are written in simple language.

"The South African Gardening Manual" is a necessary guide compiled essentially for our conditions. Of especial importance are the sections devoted to descriptions of and treatment for diseases and insect pests. "The Australian Gardener," by Leslie H. Bruning, is a manual of somewhat similar range which may also be found useful here.

A book which should appeal to South African gardeners will be "Gardening in East Africa," published in London this year. Edited by Dr. A. Jex-Blake, it comprises 20 chapters contributed by members of the Kenya Horticultural Society and of the Kenya and Uganda Civil Services, while native plants are dealt with by H. M. Gardner, Conservator of Forests. Details of climate are given; also soils, manures, propagation, diseases, and practical experience in growing flowers, fruit and vegetables. The

book has been well received in England. The third (1925) edition of H. F. Macmillan's "Tropical Planting and Gardening," although it has particular reference to Ceylon, will be found useful in parts of the Union.

For lighter reading we can also derive many practical hints from "The Gardens of South Africa," by Dorothea Fairbridge; and "A Garden in the Veld," by Mrs. R. E. Boddam-Whetham. The former book is too well known to require description, while the latter tells of the making of a garden under trying climatic conditions.

Intimately associated with the general culture of plants there are the subjects of Propagating and Pruning. In "Plant Propagation," by Walter Davis and W. D. Drury, we have a ready reference to the methods adopted with all classes of plants, while in "The Propagation of Trees and Shrubs," by G. C. Taylor and F. P. Knight, we have an excellent book resulting from considerable practical experience. Both are published in England. The training and pruning of fruit trees and bushes usually receive close attention in the encyclopaedias and general books, but "The Lorette System of Pruning," by Louis Lorette, translated by W. R. Dykes and published in England some years ago, describes this method of pruning which has especial application to the restricted growth required in small gardens. America has a standard text-book on pruning in Dr. L. H. Bailey's "The Pruning Manual."

Of late years the pruning of ornamental trees and shrubs has become a recognised art in Britain, and "The Pruning of Trees and Shrubs," by W. Dallimore, will introduce the subject. In a thin volume of some 60 pages published this year A. J. Sweet tries to cover "Ornamental Shrubs and Trees—their Selection and Pruning." Written for England, it outlines modern methods of pruning, but the scope of the book is worthy of greater detail. Of importance is the comparatively new science of tree-surgery, and "The Care and Repair of Ornamental Trees," by A. D. C. Le Sueur, published in England in 1934, contains very full instructions on pruning, lopping, the treatment of wounds and cavities, and the control of pests and diseases.

The library now splits into sections devoted to particular groups of plants—e.g. fruit, vegetables, orchids, tropical plants, greenhouse plants, shrubs, herbaceous plants, bulbs, and so on. These again divide into generic sections, such as Carnations,



Roses, Gladioli, Narcissi, Violets and Pansies, etc. Space does not permit of a detailed description of all groups, but as trees and shrubs are of growing importance in the planting of our gardens for permanent effect, we may use this group as an illustration.

We have a general guide in Sim's "Flowering Trees and Shrubs for Use in South Africa," two-thirds of which is devoted to exotic species. It is a book worthy of extension. The standard English text-book is W. J. Bean's "Trees and Shrubs Hardy in the British Isles," in 3 volumes, the third being in the form of a 1933 supplement bringing the work up-to-date and including many species which are only hardy in the warmest localities or on walls in Britain. In addition, the same authority has given us two little books on "Ornamental Trees for Amateurs" (1925), and "Shrubs for Amateurs" (1924). Midway in price and scope we have "Shrubs and Trees for the Garden," by A. Osborn (1933), who has packed into this single volume a very large amount of material illustrated with 8 coloured plates and over 300 photographs.

In America there is Rehder's very fine "Manual of Cultivated Trees and Shrubs," which includes species, varieties and hybrids hardy in America to 1927. Unfortunately the term hardiness in this book is rigidly confined in the south and east to areas "with the mean temperature of the coldest month near the freezing point," thus excluding many fine trees and shrubs which would grow well in South Africa.

Back in England we have Dallimore and Jackson's "Handbook of the Coniferae, including Ginkgoaceae" (second edition, 1931), which, for cone-bearing plants, should be used in conjunction with "Conifers in Cultivation," edited by F. J. Chittenden. The latter is the report of the 1931 R.H.S. Conifer Conference (which cleared the air regarding nomenclature) and contains a chapter on Exotic Conifers in South Africa. Bailey's "The Cultivated Evergreens" (1923) deals mainly with Conifers, though there is a section on broadleaved evergreens planted in America and Canada up till that date. In collaboration with Dr. Rehder and others, the section on Conifers has been brought up-to-date in Dr. Bailey's "The Cultivated Conifers in North America," a book published last year, which contains much cultural detail. Dwarf and Slow-growing Conifers were dealt with by Murray Hornibrook in a book of that name published in England in 1923.

The fascination of the late E. H. Wilson's "Aristocrats of the Trees" is only equalled by his two previous books on "Aristocrats of the Garden." In all three this famous plant collector gave us first-hand knowledge gained from his travels in China, Japan and elsewhere, coupled with long experience of growing choice species at the American Arnold Arboretum.

Both Captain F. Kingdon Ward and E. H. M. Cox have provided us with interesting little books on "Rhododendrons for Amateurs," the first by a noted plant collector and the second by an enthusiastic gardener who has also collected plants in Upper Burma. Those who are interested in the European species and hybrids of Erica, and the formation of Heath Gardens in England, will enjoy reading two small books—"The Low Road," by D. Fyfe Maxwell, and "The Hardy Heaths and some of their Allies," by A. T. Johnson. The lilac enthusiast will turn to America for Mrs. McKelvey's "Monograph of the Lilac," an authoritative study of the species and varieties of Syringa, but expensive.

Although the main object here is to draw attention to some of the more important of English and American books on plants and their culture, we cannot ignore the fact that there are many inexpensive, well-illustrated books (such as those written in England by H. H. Thomas, the late T. W. Sanders, and A. J. Macself), which deal simply and satisfactorily with the treatment of popular garden subjects. They are to be found in every good bookshop. South Africa has a very good example of this type of book in "Carnation Culture in S. Africa," published by the Specialty Press.

Neither must we forget some old books. The best value ever offered to the gardening public was the "Present-Day Gardening" series, a pre-war set which originally comprised nearly 30 titles. Edited by the late R. Hooper Pearson, each volume was written by an acknowledged expert, and was an attractive, cloth-bound book with 8 first-class, natural-colour plates. They sold for the ridiculously low price of eighteen-pence, but have now risen in value. A few are still obtainable and, although some are now obsolete, others remain very useful, such as "Orchids," by James O'Brien; "Pansies, Violas and Violets," by Cuthbertson and Pearson; Rhododendrons and Azaleas," by Wm. Watson; and "Lilies," by A. Grove.

During the past few years we have been favoured with several books by writers who have had many

years of practical experience as commercial growers. An example is M. C. Allwood's "Carnations for every Garden and Greenhouse." Another is Calvert's "Daffodil Growing for Pleasure and Profit." Then we have G. A. Phillip's "Delphiniums—their History and Cultivation." Each is a sound and reliable book published in England.

To-day there is a steady increase of superbly illustrated books which combine the appearance and accuracy of a monograph with a reasonable price and practical cultural information based upon personal experience. The finest example known to me is George Taylor's "The Genus *Meconopsis*," published last year, the chapter on culture being contributed by E. H. M. Cox. But *Meconopsis* apparently do not take kindly to South Africa.

Another model monograph of great practical importance is "The Lilies of Eastern Asia," published in America a few years ago. It is one of the best of E. H. Wilson's many books. Incidentally, the latest book on the genus *Lilium* is one by H. Drysdale Woodcock, K.C., and J. Coutts, reviewed as an excellent and comprehensive guide for growers of these beautiful plants. "The Book of the Tulip," by Sir A. D. Hall, compresses for our benefit the results of close study over a long period of years. "A Handbook of *Narcissus*," by E. H. Bowles (1934), describes in easy and captivating style, and with authority, the species, hybrids, history and culture of these "old-world" bulbs. The same author's "Handbook of *Crocus* and *Colchicum*" has, since 1924, been the reference book on this group. "The Genus *Iris*," a monumental work by the late W. R. Dykes, gave rise in 1924 to his more modest but very useful "Handbook of Garden Irises." All these are English, but those who are interested in the species and hybrids of *Hemerocallis* will consult "Daylilies," by Dr. A. B. Stout, and published in America last year.

A short cut to the latest information on certain plants can be secured by maintaining touch with the following English Societies: *Rhododendron* (Association), *British Carnation*, *National Carnation* and *Picotee*, *British Delphinium*, *National Chrysanthemum*, *National Sweet Pea*, *National Dahlia*, *National Auricula* and *Primula*, *Cactus* and *Succulent*, *Iris*, *British Gladiolus*, and *National Rose*, most of which issue an annual publication containing much of interest. That of the *National Rose Society* is a wonderful production. There are also the *Lily Year-*

books, published by the Lily Group of the R.H.S., and the Royal Horticultural Society is now publishing once more the "Daffodil Year Book," after a lapse of several years.

It would be well to conclude this section with three books of special application to our own native plants. From America we have "The *Stapeliaceae*," by A. White and B. L. Sloane, which was reviewed in this Journal last year, while Brown, Tischer and Karsten's "*Mesembryanthema*" brings us up to 1931 on this puzzling aggregate genus. The latest book on succulents is H. Jacobsen's "Succulent Plants," translated by Mrs. Vera Higgins. It has been well received in England, where emphasis has been laid upon the numerous valuable illustrations.

Regretfully I have to exclude from this article books on the plants which grace European rock gardens, and a veil must be drawn over the glorious phrases which poured from the pen of Reginald Farrer. For the South African rock garden will remain primarily a home for succulents, and its composition and construction will be governed largely by the natural habitat of those plants.

Our second main section of the gardeners' library consists of books on garden design and colour schemes. While not suggesting that the South African gardener should try to slavishly copy the gardens of Europe in either design or content, the underlying principles and the technique involved are of general application. Several English books treat the subject in a practical manner.

The classic on garden design is Mawson's "Art and Craft of Garden Making," a magnificent work which goes unchallenged. There are other useful and less expensive books. In 1913 Madeline Agar wrote her "Garden Design in Theory and Practice," which couples the elements of surveying and planning with useful advice on construction. A newer outstanding book is Richard Sudell's "Landscape Gardening," which contains 8 coloured plates, 200 very fine photographs and 100 plans, the text telling how to plan and lay-out any area from a villa garden to an estate, plus a chapter on Gardens of Other Nations, while T. H. Mawson contributes a History of the English Garden.

An excellent outline of modern garden design is given in Sudell's "The New Garden," a smaller book which has practical information on planning, laying-out the design, selection of plants (for England), and details of garden structures. Last year Percy F. Cane



gave us "Garden Design of To-day," which contains the elementary principles of planning and planting and is well illustrated. G. C. Taylor's "Garden Making by Example" (first edition, 1932; second edition, 1935) is a suggestive little book by reason of its many illustrations and specimen plans.

While most books on garden design give a preliminary outline of surveying, there is much to be said for studying also some special book on the subject, so as to thoroughly understand the use of instruments and measurement of areas. This applies more particularly to professional gardeners. There are many such books, and a good example is "Surveying and Surveying Instruments," by C. A. T. Middleton. "The Field Manual," by A. Lovat Higgins, is rather expensive and is really intended for Civil Engineers, but to the keen Landscape Architect it will be a boon, containing as it does an immense amount of information on everything associated with surveying. Both are published by Pitmans.

Colour-planning in South African gardens will vary somewhat from its counterpart in England, chiefly owing to the different range of material. In 1914 Miss Jekyll gave us her valuable "Colour Schemes for the Flower Garden," garnered from her own great experience and artistic sense. Fifteen years later Miss Jekyll provided the introduction to "Colour Planning of the Garden," by G. F. Tinley, T. Humphreys and W. Irving, a massive book, the main portion of which classifies flowers in chapters composed of colour-groups. Of strikingly similar arrangement, but on a much smaller scale, there is M. E. Stebbing's "Colour in the Garden." Both are fully illustrated with charming reproductions of paintings by Miss M. Walters Anson.

Our third main section of the library contains books on the sciences related to plant culture. There are a very large number of good books on botany. "Hutchinson's Popular Botany," by E. Step and A. E. Knight, published in England about 12 years ago, in fortnightly parts (later in two volumes), presents the subject in a detailed yet entertaining manner, generously illustrated with photographs and coloured plates. More technical is Strasburger's "Text-book of Botany," brought up to 1930 in the 6th translated edition (corresponding to the 17th German edition). Bews' "Plant Forms and their Evolution in South Africa" explains itself by its title and is intensely interesting. B. D. Jackson's

"Glossary of Botanical Terms" is the most reliable book of this type, and Marloth's "Common Names of Plants" has special value to growers of our native species.

Sir A. D. Hall's "The Soil" is a standard textbook, the fourth edition of which appeared in 1931. His companion volume, "Fertilisers and Manures," is in its 1929 third edition. Another good pair of similar scope are "Soil Conditions and Plant Growth," and "Soils and Manures," both by Sir John Russell. All four are published in England.

Those who desire to take up the hybridising of plants should first study R. C. Punnett's "Mendelism," Dr. Darlington's "Chromosomes and Plant Breeding," and "The Genetics of Garden Plants," by M. D. Crane and W. J. C. Lawrence—all published in England.

I have found Dr. W. W. Watts' "Geology for Beginners" to be an excellent introduction to the subject, though written for English students. A general knowledge of Climatology is important for those who garden in South Africa, and a considerable amount of information regarding climate in relation to physical, geological and botanical features of the Union will be found in Memoir No. 4 of the Botanical Survey. Those who wish to study climatology more fully will find the subject thoroughly dealt with in "The Climates of the Continents" and "Climate," both by W. G. Kendrew.

Information on diseases and insect pests of plants will largely remain fluid. The difficulty in selecting books lies in new methods of control being continually evolved. Most of these troubles are fairly well dealt with in general or special books on plants. The British Ministry of Agriculture and Fisheries issue numerous leaflets and bulletins on diseases and pests (and on the cultivation) of a variety of crops. These are revised periodically. Catalogues and lists are supplied by His Majesty's Stationery Office, Adastral House, Kingsway, London, W.C. 2. There are in South Africa one little publication on Orchard Pests by W. F. Schlupp and three on Apple, Pear, Quince, Potato, and Tomato diseases by Dr. E. M. Doidge.

Since there are so many good garden plants native to this country, South African floras are essential. This does not necessarily mean the purchase of the "Flora Capensis," or of Marloth's magnificent "Flora of South Africa." A very useful general survey is Dr. E. P. Phillips' "Genera of South African



Plants," while Franz Thonner's "Flowering Plants of Africa" covers the whole continent. T. R. Sim's painstaking "Forests and Forest Flora of Cape Colony" is now scarce, but his "Ferns of South Africa" is obtainable and less expensive. Of particular use to those near Cape Town is the "Guide to the Flora of the Cape Peninsula," by Mrs. M. R. Levyns, and also "Orchids of the Cape Peninsula," by Dr. Bolus, while among really popular books we must have the delightful "First Book of South African Flowers," so charmingly written by Mrs. Bolus and so beautifully illustrated by Miss D. Barclay and E. J. Steer.

Nor should we forget books about the native plants of other countries. For example, there is the very interesting little book by the late Dr. L. Cockayne on "New Zealand Plants and their Story"—a study of New Zealand plants from an ecological standpoint. The second edition of the same author's more elaborate "Vegetation of New Zealand" was published at Leipzig in 1928.

Lastly, the handlists of plants growing at Kew will act as a valuable guide regarding names and synonyms.

Books of travel and of light reading, and rare works, are further extensions of the gardener's library less closely associated with the main fabric; though it must be emphasised that those which deal with the travels of plant-collectors are of definite assistance to us in providing suitable conditions for our plants.

This article does not aim at completeness, for there can be no finality either in gardening or in books. It merely indicates the lines upon which we may build an efficient garden library, and gives examples of good books. The component parts of the library will not change much with the passage of time, but new books may supersede the old. For this reason we must endeavour to gather together those volumes which are least likely to lose quickly their practical value.

KIRSTENBOSCH,

*November, 1935.*

## From New York to Kirstenbosch and back.

By SARAH V. COOMBS.

SOMEONE has asked me to give my impressions of Kirstenbosch, where I spent many weeks in the spring and summer of 1934. As I think over my stay there, I realize that my reaction is almost entirely an emotional one, and what place has emotion in a publication of this kind? Only those who, night after night at sea have watched the Dipper and the North Star sink lower toward the horizon, and then have seen the Southern Cross shine in the sky in the early evening, can realize how wide the ocean is. So from the distance in time of a year and in space of 7,000 miles of turbulent and quiet ocean lying between New York and Cape Town, possibly there will be gentleness and not criticism toward me if I give my impressions not too scientifically.

Six or seven years ago, having some leisure and a life-long interest in botany and horticulture, gained in early youth from plant-collecting expeditions with a botanical father, I began to study the *Gladiolus* species. At the time the study of this group began, it might just as well have been *Pentstemons* or *Lupines*

or *Dianthus* or *Lilies*, or some other group that I chose. It was chance, I suppose, that made my choice, though I like to feel that some other influence was at work. The New York Botanical Garden, with its magnificent library of 46,000 volumes, was a near neighbour. As everyone in your land will realize, the *gladiolus* trail led straight to South Africa.

The years of study, with a few weeks at Kew, gradually cleared the map of Africa, at first as unfamiliar as the Arctic regions. Little by little, names slid into their proper places. Caledon and Oudtshoorn, Clanwilliam and the Drakensberg were no longer vague spots, to be looked up every time. Grahams-town and Port Elizabeth, and the Karroo and Namaqualand and Pretoria, and many others found their own locations. Other flowers beside the *Gladiolus* kept pushing themselves into notice, and many hours were spent looking at pictures and reading descriptions of *Nerines* and *Haemanthus* and *Proteas*, etc. Also the Botanical Garden was growing many of these flowers under glass and a few as summer annuals or

bulbs. A great longing grew up at last to see this rich flora in its native land, a longing that took concrete form when I entered the gates of Kirstenbosch on a day late in August, 1934. My ship had reached Cape Town the day before, and my first trip was to Claremont. I had pored over the little Kirstenbosch pamphlet till I knew as I entered the gates just where to look for the Silver Trees and the Proteas, just where the *Mesembryanthemum* bank would be found, in what direction the *Ericas* would be and the pond and the forest, etc. It was a beautiful morning. The sky above Castle Rock was intensely blue, the many-coloured carpet of "the Daisies" lay at my left. Arums, known to us as Calla Lilies, were by the little stream at the right. Alluring colour beckoned from every quarter. As I stood there for quite a long time, just one thought emerged: "It was worth while to have come."

Later, when I was able to live right in the Garden, every inch of it became familiar and beloved; the *Watsonias* and the *Moreas*, later the *Disas*, and many others along the stream; the *Kniphofias* and *Dieramas* by the pond, with *Crinum campanulatum* rising from it, and later *Nymphaea stellata* looking at its own reflection in the calm surface; to the left, as one walked across the lawn, the *Mesembryanthemums*, and right and left the *Gerberas* and the *Babianas* and the *Strelitzias*, the *Sparaxis*, the *Pelargoniums*; the uninvited pink carpets of *Oxalis variabilis*; the *Homerias* and the *Ericas*, the *Leucadendrons* and the *Proteas* and the *Leucospermums*; the blue *Felicias* and the bluer *Charies*, and as summer drew on, the masses of *Agapanthus*; the *Cycads* in their little valley; the ferns and *Streptocarpus* and *Cyrtanthus* and *Crinums* near Lady Anne's Bath; the *Brachycarpaeas* on their bank, each group has made a vivid picture which will not be forgotten. In that gallery also is the attractive Bolus Herbarium, where I spent many quiet hours of study. The Rock Garden is sharply etched by memory, with its odd inhabitants, many queer and beautiful, others just queer, but all interesting. Must I reduce my thoughts to the scientific naming of the flowers I grew to know so well, or may I simply record these impressions?

A fine group of rare succulents was sent during my stay from Kirstenbosch to the New York Botanical Garden. Many others were given me by different friends, and I was able to take them to the Botanical Garden under a special permit from the United States Department of Agriculture, which has the strictest and

closest quarantine imaginable. With very few losses, thanks to skilful packing by the donors and others, and in spite of the long journey, they are now growing very contentedly in the large greenhouses at the Botanical Garden. This garden consists of 400 acres within the limits of New York City. In March, many of the succulents made part of a splendid exhibit of South African flowers at the International Flower Show in New York City, were written up most enthusiastically in the newspapers, and were surrounded for the six days of the show by immense crowds of people, all demanding to be shown the "Windowed Plants" and the "Stone Plants" and the "Elephant's Foot." This last was described by "The New Yorker," a facetious and much-read weekly, as "almost as pretty as a fire-hydrant!" A shoot of this plant has now climbed to the top of its greenhouse and is in full bloom. The main group of South African flowers at the Flower Show was astonishingly beautiful and varied, all raised under glass, and a bright mass of colour. The exhibit was awarded two gold medals, highly prized ones, and the Flower Show Committee of the Massachusetts Horticultural Society is very anxious to have the exhibit sent to Boston for their big show next March. Much of the credit for it should go to the Horticulturalist of the New York Botanical Garden, Mr. T. H. Everett, who was trained at Kew. The greenhouses at the New York garden are sprouting with South African seeds and plants. Dozens of labels bear the marks "Kirstenbosch," "Luckhoff" (Dr. Luckhoff, of Oranjezicht), "Coombs," "Pt. Eliza." (seeds from Mr. Long, of Port Elizabeth), and others, to me happy reminders of my South African visit.

The day before I sailed from Cape Town for home, in midsummer, I went, late in the afternoon, into the Kirstenbosch garden for the last time, through the woods which, when I arrived had been filled with Arums and fragrant with the *Podalyria*, and but for these, looked like New England. I sat on a ledge in the Rock Garden and for a long time watched the lights and shadows above the mountains and across the valley. The garden was loveliest at that time. I sat there till the light faded and twilight dimmed the colours, and in that soft shadow I said good-bye to a place which, as a traveller in a good many countries, I consider one of the most beautiful in the world.

Scarsdale, New York.

August 19, 1935.





PLATE V.—South African Plants exhibited by the New York Botanical Garden at the International Flower Show, New York City, March, 1935.





PLATE VI.—KIRSTENBOSCH: The Lawn and Castle Rock.  
(By permission of the Cape Peninsula Publicity Association.)

# South African Conifers for Garden Use.

By J. W. MATHEWS.

THE Coniferae are represented in the Union by only two genera, Podocarpus and Widdringtonia.

The Podocarpus, or Yellow-woods, contains two to four species, and three or less varieties, according to different authorities. All are handsome, evergreen trees of variable outline and ramification. They are equally valuable as ornamental trees as they are for timber.

Of Widdringtonias, or South African Cypresses, there are reputed to be five species. *W. equisetiformis* seems to be known only by specimens in the British Museum, which were collected on the Katberg by Baur. Sim, in the "Forest Flora of Cape Colony," says he has seen nothing answering to the description.

The other four species are represented at Kirstenbosch by healthy specimens planted out about 1915. Their satisfactory growth and appearance under adverse soil and moisture conditions seem to indicate a great value for general planting.

More for landscape effect than any other reason they were planted on a slope of about 40 degrees in the Cycad Amphitheatre. The soil is a heavy, gritty, red clay, with only a very shallow surface soil. Although the annual rainfall is heavy, owing to the rapid run-off, its value to the plants cannot be more than 20 or 25 inches on an approximately level surface of a more porous soil.

The position is sheltered from strong winds. They have been healthy from the start, and free from insect pests.

*W. Schwarzii* is of restricted distribution in the Midlands. The Kirstenbosch plants have attained a height of 35 feet, and a spread of about 20 feet at the base. They are widely pyramidal in outline, and well furnished to the ground level. In general appearance and colour they resemble *Cupressus macrocarpa*, and being without its distressing habit of dying out,

should be entirely reliable. If it withstands clipping it should replace the *macrocarpa* for all purposes. It is said to reach 80 feet in height.

*W. juniperoides*, the Clanwilliam Cedar, as grown here, is a tall, narrowly pyramidal tree. It has grown to 30 feet high and about 10 feet wide. Its habit differs very much from the gaunt, wide, spreading trees of the Cedarberg range of mountains. With early side clipping it should provide an effective substitute for *Cupressus horizontalis* in Italian walks and vistas. It will reach 60 feet in height, and yields a commercial timber.

*W. dracomontana*, from Natal, is a slow-growing dwarf tree. It has grown barely 20 feet high, with a spread of 10 feet, a greater width in proportion to its height than the above, and the width now seems to be increasing more rapidly than its height. There are cypress-green and glaucous varieties. Both are ornamentals for individual planting.

*W. cupressoides*, the Table Mountain cypress, is rather shrubby than of tree form, and does not grow more than 20 feet, and generally nearer 15 feet under open conditions. It is variable in habit, and at its best form is compact and erect. It coppices freely when burnt off or cut down. It promises to be a useful hedge plant as it withstands trimming. Untrimmed, it should make a satisfactory shelter-belt, or screen of moderate height. It is quick growing.

Its distribution extends from Table Mountain up to Natal, where *W. natalensis* is now considered not to be distinct from it.

Seeds of all are produced freely, and rapid increase should not be difficult commercially. Their characteristics and behaviour under adverse conditions certainly make them worthy of extended trials for hedges, shelter-belts, and ornamental trees and shrubs for private or public gardens, and estates generally.

Kirstenbosch.

November, 1935.



# The Botanical Society of South Africa.

ANNUAL REPORT, 1934.

**I**N publishing the Annual Report and Financial Statement, the Society is to be congratulated on the very satisfactory progress made during the year under review. Primarily due to the untiring energy of Mr. F. Metelerkamp, a Member of the Council, the membership has grown from 1,371 to 1,594, and the thanks of the Society are due to him.

During the year under review, and since its close, some of the most destructive mountain fires upon record have occurred. The apparent indifference of public authority, and the general public, to the pernicious and far-reaching effect of these appalling conflagrations is astounding. Not only is rare plant life sacrificed, some of which probably is rendered extinct, but the removal of vegetable covering from the rocks and veld involves widespread soil erosion, and deep dongas, which rush the rains and quantities of precious earth to the sea.

A fruitful cause of the mountain fires is that the law allows the gathering of dry wood gratis. That should be stopped or regulated in such a way that no inducement to set fire to trees and bushes purposely would exist.

Another very misguided practice is that of veld-burning, common in the Union to hasten the growth of the season's grass. This should also be resolutely stopped, for in its effect it is not unlike the practice of savages growing crops upon the same soil year after year until the mineral contents are exhausted, and then moving to an adjacent virgin area. Thus are deserts created!

We take pride in our marvellous mineral wealth, forgetting that it will be exhausted in time. What is to happen then? On the whole our rainfall, though rather capricious, is adequate. Its conservation in suitable localities is essential, and the share of the mineral wealth taken by the Government permits much good work in that regard.

The puffing locomotive labouring up an incline in thick grass and wooded land is often the culprit in starting conflagrations. Spark catchers (hinged, to be applied only when needed), could be introduced.

Broken bottles, carelessly thrown into the veld, may start a fire.

With an increasing population it is imperative to nurture the fertility of the land, and, though the Botanical Society is a specialist organisation, it would be neglecting its duty if it failed to draw attention to kindred subjects of the land welfare.

Veld-burning must in time render the new-born grass harder and less succulent. Persons intending to burn a small section on their own property should remember that our winds rage and die down far more capriciously than in the more temperate zones, and hence a fire may, and often does, get out of hand.

Good as the work of our Society may be in preserving and developing our wild flora, spreading its fame and attracting visitors, it is insignificant beside the foregoing vital subject.

**KAROO GARDEN, WHITEHILL.**—The financial aid given by the Botanical Society to Whitehill was greatly appreciated by the Trustees, and has assisted in maintaining this valuable and unique Garden, which up to the present has received no grant from public funds. There is great need for addition help, and it is hoped that many new subscribers will be obtained for the Karoo Garden, both among new Members of the Society and among those who already support Kirstenbosch.

**BOLUS HERBARIUM.**—A report having been received that the University of Cape Town was discussing the removal of the Bolus Herbarium from the site which for ten years it had occupied at Kirstenbosch, the Council of the Society protested to the University against the proposal as being prejudicial to the work and interests of the National Botanic Gardens.

**NEW BOTANICAL PERIODICAL.**—The Society welcomes the publication of "The Journal of South African Botany," which is to be issued quarterly under the auspices of the Trustees of the National Botanic Gardens, and edited by Professor Compton. The new journal is to be devoted to the publication of scientific work connected with the South African flora. Members of the Botanical Society are enabled to purchase the new periodical at a reduced price, and



it is hoped that many will take the opportunity of doing so.

CAPE TIMES KIRSTENBOSCH FUND.—Through the good offices of the Cape Times newspaper, a substantial sum was added to the funds of Kirstenbosch, the total being (1) For Silver Tree Preservation, £628 17s. 5d.; (2) For Research Purposes, £117 15s.; and (3) For General Purposes, £387 2s. These amounts were contributed by voluntary subscription, and the details were published in the Society's Journal, Part XX.

MEMBERSHIP.—It is gratifying to record that there has been an increase in membership, as displayed by the following figures:

|                   |     |     |     |     |       |
|-------------------|-----|-----|-----|-----|-------|
| Life Members      | ... | ... | ... | ... | 77    |
| Family Members    | ... | ... | ... | ... | 93    |
| Ordinary Members  | ... | ... | ... | ... | 889   |
| Associate Members | ... | ... | ... | ... | 535   |
|                   |     |     |     |     | <hr/> |
|                   |     |     |     |     | 1,594 |
|                   |     |     |     |     | <hr/> |

which is an increase of 223 as compared with the previous year.

JOURNAL.—During the year the Twentieth Volume of the Society's Journal was published, under the editorship of Professor R. H. Compton, Director of the National Botanic Gardens. Very interesting articles continue to appear in each issue. Professor Compton and Mr. J. W. Mathews each contributes articles which should be of infinite interest to the South Africa flower lover. Mr. G. W. Reynolds sends an interesting contribution on the Aloe polyphylla. The Journal continues to arouse very great interest in botanical circles all over the world.

FINANCE.—As will be seen by the Balance Sheet, the total investments amount to £1,194 os. 2d. The yearly contribution to the National Botanic Gardens was £814 4s. 9d., an increase of £5 18s. 4d. as compared with the previous year.

MEETINGS OF COUNCIL.—Four meetings of the Council, as laid down by the Constitution, were held during the year under review. At the Annual General Meeting, held on 23rd March, 1934, the following Office Bearers were elected:

*President*: The Rt. Hon. Sir James Rose-Innes, P.C., K.C.M.G.

*Vice-Presidents*: Sir Lionel Phillips, Bart.; J. B. Taylor, Esq.; and P. Ross Frames, Esq.

*As Members of Council:*

|                         |                           |
|-------------------------|---------------------------|
| Lady Phillips.          | Mrs. H. E. White.         |
| Mrs. F. Bolus.          | Major G. B. van Zyl, M.P. |
| Mrs. C. W. A. Coulter.  | Professor R. H. Compton.  |
| Miss E. Struben.        | Dr. Bennie Hewat.         |
| Miss F. M. White.       | W. Duncan Baxter, Esq.    |
| W. A. Eaton, Esq.       | H. Tevis, Esq.            |
| H. C. Starke, Esq.      | W. de N. Lucas, Esq.      |
| C. J. Sibbett, Esq.     | Dr. J. Luckhoff.          |
| Brigadier J. S. Wylie.  | F. E. Cartwright, Esq.    |
| F. W. Metelerkamp, Esq. |                           |

ANNUAL GATHERING OF MEMBERS.—The Annual At-Home of the Society took place at Kirstenbosch on Thursday, 4th October, and was attended by about 320 Members and their guests. Sir James Rose-Innes, President of the Society, welcomed the members and spoke of the increasingly important work which was being carried out in the Gardens. Professor Compton paid tribute to the valuable work carried out by the Curator, Mr. J. W. Mathews, and expressed appreciation of the loyalty of the Staff. Members had a view of the Succulent Garden, in which the plants were now thoroughly established and which forms one of the main features of the Gardens.

During 1934, the Gardens distributed to Members of the Botanical Society and other institutions 578 lots of material comprising:

5,254 packets of Seeds, 6,111 Cuttings, 5,114 Bulbs, 14,210 Plants and Seedlings.

The total number of Contributions of Plant Material to Kirstenbosch during the year was 2,998 lots of material, comprising:

525 packets of Seeds, 1,668 Cuttings, 7,835 Bulbs, 7,850 Plants and Seedlings.

The number of Visitors recorded as entering the gates was as follows:—Saturday Afternoons, 11,028; Sundays, 36,302; Public Holidays, 8,822; being a total of 56,512, making a decrease as against last year for these days of 451. No records are kept on other days.

The Bolus Herbarium examined 713 specimens from Kirstenbosch during the year, of which 475 were identified as known species, and 54 as new species.

OBITUARY.—We regret to record the death of Dr. N. E. Brown, the veteran authority on the South African flora, and of Lord de Villiers and Mr. Reginald Cory, Life Members of the Society.

THANKS.—The Council has again to express its indebtedness and sincere thanks to Mr. McDonald for his kind assistance in auditing the accounts of the

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA.

Society; to Professor Compton for his very valuable aid in having acted as Editor of the Journal; to the South African Association for use of their Board Room for meetings of Council, and to the Press for their

hearty co-operation in recording the proceedings of the Society.

LIONEL PHILLIPS,  
*Chairman.*

**BALANCE SHEET as at 31st DECEMBER, 1934.**

[illegible]

**REVENUE AND EXPENDITURE ACCOUNT for 12 months ended 31st December, 1934.**

|   | £  | s.    | d. | £   | s. | d. |                  | £                       | s. | d. | £     | s.    | d. |    |
|---|----|-------|----|-----|----|----|------------------|-------------------------|----|----|-------|-------|----|----|
| General Expenses ... ..                           |    |       |    | 47  | 16 | 0  | Subscriptions—   |                         |    |    |       |       |    |    |
| Clerical Assistance ... ..                        |    |       |    | 48  | 0  | 0  | Family ... ..    | 177                     | 7  | 0  |       |       |    |    |
| Bank Charges and Exchange ... ..                  |    |       |    | 8   | 6  | 3  | Ordinary ... ..  | 718                     | 12 | 4  |       |       |    |    |
| Stationery and Printing ... ..                    |    |       |    | 55  | 0  | 1  | Associate ... .. | 109                     | 4  | 0  |       |       |    |    |
| Expenses on A/c Special Effort for Members ... .. |    |       |    |     | 5  | 17 | 1                |                         |    |    | 1,005 | 3     | 4  |    |
| Annual Gathering at Kirstenbosch ... ..           |    |       |    |     | 29 | 15 | 2                | Sale of Journals ... .. |    |    |       | 1     | 18 | 11 |
| Journal, Part XX, 1934 ... ..                     | 73 | 17    | 4  |     |    |    |                  | Donations ... ..        |    |    |       | 6     | 0  | 0  |
| Less Advertisements ... ..                        | 29 | 10    | 0  |     |    |    |                  | Interest ... ..         |    |    |       | 40    | 4  | 5  |
|   |    |       |    |     | 44 | 7  | 4                |                         |    |    |       |       |    |    |
| Surplus for year, 1934 ... ..                     |    |       |    | 814 | 4  | 9  |                  |                         |    |    |       |       |    |    |
|   | £  | 1,053 | 6  | 8   |    |    |                  |                         |    |    | £     | 1,053 | 6  | 8  |

Audited and found correct,  
R. L. McDONALD,  
Auditor.

(Signed) FRANK E. CARTWRIGHT, Hon. Treasurer.  
(Signed) LIONEL PHILLIPS, Chairman.

# List of Members of the Botanical Society.

(LIFE MEMBERS:                      FAMILY MEMBERS:                      Ordinary Members:                      Associates.)

The star (\*) indicates Members who are also Subscribers to the Karoo Garden, Whitehill.

In case of any inaccuracy in the following list it is requested that notification should be made to the Hon. Secretary, P.O. Box 267, Cape Town.

- Honorary Members:*  
Hill, Sir Arthur  
Pearson, Mrs. H. H.  
W.  
Seward, Prof. A. C.
- A.**  
Abbey, W.  
ABBOTT, W. C.  
Abernethy, Miss O.  
Ackerman, Miss A.  
Ackerman, Mrs. G.  
Acock, J. P. H.  
Adams, Mrs. E. V.  
Adamson, Mrs. D. A.  
ADAMSON, PROF. R. S.  
Aiken, Mrs. A.  
Ainslie, Miss I.  
Ainsworth, Colonel J.  
Airth, G. R.  
AKERMAN, C.  
Albert Road School,  
Woodstock, Principal.  
Albow, I.  
Albrecht, C. W.  
ALBU, SIR GEORGE, BART.  
Alderson, Miss D.  
Aldridge, K. W.  
Alexander, A.  
\*Alexander, Miss E. I.  
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Alexander, Mrs. J.  
ALI, H. H. PRINCE  
MOHAMED  
ALICE, H.R.H. PRIN-  
CESS, COUNTESS  
OF ATHLONE.  
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Allschwang, H.  
Allison, J.  
Allison, Mrs. J.  
Allister, R.  
Alston, Mrs. L. R.  
Anderson, Mrs. C. L.  
Anderson, Col. Sir L.  
Anderson, Mrs. T.  
Anderson, Dr. C. T.  
Anderson, E. B.  
Andersson, E. J.  
Andersson, Mrs. E. J.  
Anthony, E. A.  
Appleyard, Mrs.  
Apsey, J. T.  
Arbuthnot, Miss I.  
Archbell, Mrs. J. E.  
\*Archibald, Mrs. L. I.
- Archibald, Miss E.  
Arkwright, Dr. J. A.  
Armstrong, Major H.  
W.  
Armstrong, Mrs. W. H.  
ARMYtage-MOORE, C.  
\*Arnold, Dr. G.  
Arnot, Miss A.  
ASHTON, DR. M. L.  
Askew, F.  
Attwell, Mrs. C.  
Augustus, I. S.
- B.**  
Babbs, A. T.  
Babbs, Mrs. A. T.  
Bacon, Lt.-Col. A. D.  
Bacon, Mrs. A. D.  
Backhouse, J. S.  
Bagshawe, Mrs. F.  
\*Bailey, Sir Abe, Bart.  
Baillie, Mrs. B. M.  
\*Bain, Mrs. A. G.  
Bain, W. G.  
Bain, Mrs. W. G.  
Baker, Mrs. F. Watson  
Balfour, A. P.  
\*Ballantine, Dr. A. J.  
Banks, Mrs. A. J. C.  
Barelay, Mrs. H.  
Barclay, L.  
Barker, Mrs. W. J.  
Barker, Miss W.  
Barlow, Mrs. G.  
Barlow, W.  
BARNARD, PROF. T.  
**T.**  
Barnes, Mrs. C. M.  
Barnes, Capt. E. C.  
Barnett-Clarke, Mrs. G.  
**M.**  
BARRETT, P. N.  
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Barry, G.  
Bartlett, Miss G.  
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Basson, Miss M. M.  
Basson, N. J.  
Basson, Miss S. M.  
BATEMAN, E. L.  
Bates, J. T.  
Battenhausen, Mrs. J.  
W.  
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BAXTER, W. DUNCAN
- BAXTER, MRS. W.  
DUNCAN  
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Beard, H. R.  
Beard, W. A. M.  
Beattie, Sir J. C.  
Beattie, Lady  
Beck, Lt.-Col. A. A.  
Beck, Mrs. A. A.  
Beck, T. E.  
Beechey, Rev. T. J. J.  
BEECROFT, E. E.  
BEECROFT, W. I.  
Behr, C.  
Behrmann, A.  
Benjamin, Mrs. L. E.  
Bennet, H.  
Bennet, Mrs. H.  
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Berry, H. O. W.  
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Bertie, Hon. A. M.  
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Blathwayt, Mrs. G.  
\*Blandy, Mrs. G.  
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BLOCH, N.  
Blohm, Rev. W.  
Blumberg, D. A.  
Blumenfeld, Miss M.  
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Bock, Miss S.  
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Bohling, Miss R. V.  
Bok, Hon. Mr. Justice  
W. E.  
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Bolton, E. J.  
\*BOLUS, MRS. F.  
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Booth, C. O.  
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BOTH, Mrs. F.  
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Botha, Miss S.  
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Bourke, Miss M.  
Bowen, Mrs. R. W.  
Bowen, W. M.  
Bowie, Miss M.  
Bowles, W.  
Bowlie, Mrs. M. A.  
Bowman, R.  
Boyce Thompson South  
Western Arboretum.  
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Brandmuller, E.  
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Flower and Hort.  
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Brown, Prof. A.  
Brown, Mrs. M. G.  
Brown, H. R.  
Brown, J. R.  
Brownlee, Lt.-Col. J. I.  
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Brydone, R. R.  
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- Buchanan, G. O.  
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Bull, Rev. C. E. S.  
Bullen, A. H.  
Buller, A. C.  
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Burness, A.  
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Burns, Mrs. A. M.  
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Campbell, Prof. W.  
Campbell, Mrs. W.  
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Cape Natural History  
Club.  
CAPE PENINSULA PUB-  
LICITY ASSOCIATION.  
Cape Town Training  
College.  
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Carter, Miss B.  
Carter & Co., Geo.  
Cartwright, F. E.



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CASE, MISS M. R.  
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Curry, W. A.  
*Curran, Mrs. M.*  
Curtis, H.  
Cuthbert, Mrs. W.
- D.  
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Dale, Mrs. H. R.  
*Dallas, Mrs. I.*  
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Darke, Miss E. B.  
Darter, E. L.  
DARTER, MRS. W. S.  
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*Davies, C.*  
*Davies, Mrs. E. G.*  
Davies, Mrs. H. P.  
*Davies, Mrs. M. E.*
- Davies, M. G.  
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*Davis, G. A.*  
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De Kock, K.  
De Laet, Fr.  
*Delbridge, Miss*  
*De Mole & Kisch.*  
Dent, Mrs. C. H.  
Denton, W.  
DE PASS, A. A.  
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De Villiers, Mrs. B.  
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*De Villiers, Mrs. D. G.*  
De Villiers, D. L.  
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*De Villiers, I.*  
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De Villiers, Mrs. L.  
DE VILLIERS, MRS.  
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\*De Villiers, Hon. Mr.  
Justice M.  
\*De Villiers, Mrs. M.  
De Villiers, Mrs. R.  
*De Villiers, S. B.*  
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De Villiers, Miss W.  
De Villiers St. School.  
*De Vries, H. J.*  
De Wet, C. P. E.  
*De Wet, H. C.*  
De Wet, P. J. S.  
Diamond, Mrs. F. W.  
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Dickinson, H. T.  
*Diep River School.*  
Diggle, Major P. G. W.  
Divine, Mrs. F.  
Dockrall, A. W.  
Dockrall, Mrs. A. W.  
DOCKRALL, T. A.  
Dockrall, Miss  
*Dodd, B. H.*  
*Dodd, Mrs. J.*  
Dommissie, Dr. F. H.  
*Donald, Miss E. M.*  
Donaldson, Mrs. A. G.  
Donaldson, Lt.-Col. J.  
Dorner, T. C.  
\*Dorrien Smith, Major  
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DOSE, W. K.  
Douglas, J.  
*Douglas, Mrs. R. W.*  
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Douslin, H. B.  
*Douves, Major H. M.*  
Drake, J. Z.
- Dreyer, Miss V.  
Drury, D. D.  
Du Cane, General Sir J.  
Duff, A.  
Dugdale, Mrs. J. G.  
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*Dugmore, Miss H.*  
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*Duminy, Mrs. F.*  
Duminy, Mrs. J. K.  
*Dumsday, E. S.*  
*Dumsday, Mrs. E. S.*  
Duncan, G. A.  
*Duncan, Mrs. G.*  
Duncan, Mrs. P.  
Duncan, T. H. M.  
Dunsdon, H.  
Dunsdon, Miss M.  
*Du Plessis, Miss R.*  
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DURBAN & COAST HOR-  
TICULTURAL SOCIETY.  
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- (a) To encourage the inhabitants of South Africa to take an active part in the progress and development of the National Botanic Gardens at Kirstenbosch, and the Karoo Garden at Whitehill, and to induce them to appreciate their responsibilities therein.
- (b) To augment the Government grants towards developing, improving, and maintaining fully equipped botanical gardens, laboratories, experimental gardens, etc., at Kirstenbosch and Whitehill.
- (c) To organise shows at which may be displayed the results of botanical experiments or cultural skill in improving the different varieties of South African flora.
- (d) To enlighten and instruct the members on botanical subjects by means of rambles, meetings, lectures and conferences, and by the distribution of literature.

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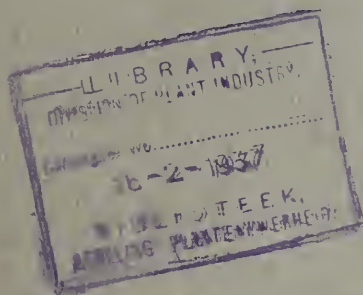
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Part XXII.

1936

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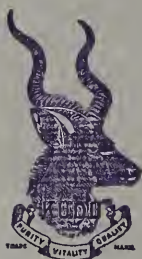


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This book, dedicated to the memory of Sir Lionel Phillips, reaches a high standard of technical excellence. The first book of South African flowers appeared eight years ago, and has been unobtainable except at "collector's prices" for some years past.

Mrs. Bolus has done her work well and faithfully. All the reward she seeks is a better appreciation of our wealth of flowers and their preservation.—*Cape Times*.

This is a book that should certainly be in the hands of every teacher of botany, biology and nature study and is well worthy of a place in the library of every nature lover.—*The Education Gazette*.

The matter of this volume has been arranged in botanical sequence, and is liberally illustrated by coloured plates and photographs, including illustrations in colour of "Stapelia" and some of its allies, "feeling," says Mrs. Bolus, "that any work dealing with our native flora would be sadly defective if some representation of so important a constituent as the succulents were not included."

Each specimen is dealt with in an exhaustive and readable manner, and the illustrations (paintings by D. Barclay and photographs by E. J. Steer) are exquisitely reproduced. The colour studies in particular enhance the publication a hundred-fold, being artistic and natural in the extreme. This book is a necessary addition to any library, and particularly to that of a lover of flowers.—*Pretoria News*.

In its text it is a worthy companion to the first book, which came out eight years ago. In its illustrations it is a finer fellow. Miss D. Barclay has contributed more of her true-to-the-veld water colourings than appear in the first volume. The photographs are again the work of Mr. E. J. Steer.

Flowers are described according to the families to which they belong, and in language stripped of obscure words. And Mrs. Bolus tells the country ramblers the very things he wants to know about a flower he finds on veld or mountain — its common name, its botanical name and who first noted and named it, why it grows in some localities and not in others.

Anyone who reads it will not pick a wild flower from its natural haunt, but will feel inspired to walk miles to meet it at home.—*Cape Argus*.

This publication fills a real want especially as its predecessor "A First Book of South African Flowers" has been out of print for some time. It is issued under the auspices of the Wild Flower Protection Society and is dedicated appropriately to the memory of Sir Lionel Phillips.

There's no need to hand out any praise here because the names of the collaborators are a warrant of quality. But the Specialty Press should be congratulated, I think, on the way they have done their part of the work, on the reproductions of the paintings and photographs, and the delightful general get-up.—*Broadcast Review*.

**The Specialty Press of S.A. Ltd., Box 21, Wynberg.**







*Lionel Phillips 1932*

SIR LIONEL PHILLIPS.

Photo: Rand Daily Mail.

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# The Journal of the Botanical Society of South Africa.

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EDITED BY R. H. COMPTON.

PART XXII



1936

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# News and Notes.

THE last two years have witnessed a considerable growth in membership of the Botanical Society. The following table shows how the Society has progressed since its foundation:—

|      | Life. | Family. | Ordinary. | Associate. | Total. |
|------|-------|---------|-----------|------------|--------|
| 1914 | 33    | 22      | 264       | 33         | 352    |
| 1916 | 49    | 26      | 264       | 45         | 384    |
| 1918 | 49    | 28      | 281       | 78         | 436    |
| 1920 | 54    | 45      | 384       | 237        | 720    |
| 1922 | 55    | 52      | 418       | 301        | 826    |
| 1924 | 62    | 57      | 455       | 313        | 887    |
| 1926 | 65    | 60      | 481       | 341        | 947    |
| 1928 | 66    | 54      | 581       | 345        | 1046   |
| 1930 | 71    | 76      | 718       | 414        | 1279   |
| 1932 | 72    | 79      | 746       | 446        | 1343   |
| 1934 | 77    | 93      | 889       | 535        | 1594   |
| 1935 | 83    | 104     | 1035      | 683        | 1905   |

The rapid growth during 1935 was largely due to the special efforts made by Mr. F. W. Metelerkamp, now Chairman of the Council, to bring the Society to the notice of potential subscribers. In many cases it is only necessary to mention the desirability of supporting the work of the National Botanic Gardens and incidentally the privileges enjoyed by Members in order to secure new Members for the Society: and we would strongly urge those who are already Members to make their own individual efforts to enrol their friends in the Society. During 1936, at the time of writing, the total membership has reached 1971, and the two-thousand mark should now be easy of attainment.

\* \* \* \* \*

Sir Lionel Phillips, whose death took place at Vergelegen in July, was a force and influence in South Africa in very many ways. It is in his relations with Kirstenbosch and the Botanical Society that we commemorate him here. The National Botanic Gardens came into existence in 1913 largely as a result of his efforts: for it was his eloquent advocacy in the House of Assembly that led to the unanimous resolution in favour of the establishment of the Gardens at Kirstenbosch; and it was his leadership which secured the necessary financial support from the Government to enable a beginning to be made. Moreover it was Sir Lionel Phillips who, at a public meeting called

by the Mayor of Cape Town on 10th July, 1913, proposed the formation of the Botanical Society, whose main object would be to assist in the establishment and maintenance of the new Gardens.

Not only was the help given by Sir Lionel Phillips all-important at the foundation of Kirstenbosch and the Botanical Society: it did not cease there, but was actively maintained until within a short time of his death. He became a member of the Board of Trustees of the National Botanic Gardens at its inauguration, and assisted in its work throughout, his wise and kindly personality and the breadth and humour of his outlook being of the greatest value. He was one of the first Vice-Presidents of the Botanical Society, and later became Chairman of the Council: his devotion to the Society and the efforts that he made for its prosperity in the interests of Kirstenbosch were unremitting. For all these services and for his gifts of personal encouragement and friendly enthusiasm his name will be remembered as long as Kirstenbosch endures.

\* \* \* \* \*

The death of Miss Edith Struben, which took place in October, robs the Botanical Society of an active Life Member and Vice-President, and Kirstenbosch of a true friend. At Luncarty, near Kirstenbosch, she had created a garden of great charm and beauty, the part on the slopes above her house being devoted to indigenous plants which were her special pride. In her oil paintings she had depicted the marvellous forms and colours of the Cape wild flowers, and it was also her pleasure to record in cinematograph films their vivid colouring as seen at Kirstenbosch or in Namaqualand. She was a vigorous advocate of wild flower protection, and as a member of the Council of the Botanical Society she constantly urged the necessity for drastic action to prevent wild flower destruction by whatever agency. By her will she bequeathed to Kirstenbosch £200 to be used for a special piece of development and for the preservation of wild flowers in danger of extinction, and also her collection of books on botanical and horticultural subjects.

\* \* \* \* \*

We also regret to record the death of Mr. R. L. MacDonald, who for several years acted as auditor of the books of the Botanical Society in an honorary capacity.



The retirement of Mr. J. W. Mathews from the Curatorship of Kirstenbosch took place in April, 1936, after twenty-three years tenure of that post. Mr. Mathews was appointed Curator at the beginning of the new enterprise, and the whole of the development of the Gardens has been effected through his practical skill, high standards and driving force. The growth of Kirstenbosch reflects his energy and determination in the face of endless difficulties. The Botanical Society recognised the value of his work and his single-minded devotion to the Gardens, and on 20th April a ceremony was held at Kirstenbosch, when the President, Sir James Rose-Innes, made a presentation to Mr. Mathews of a sum of money subscribed by members of the Society. Mr. Mathews replied characteristically. "The work at Kirstenbosch" he said, "should be a labour of love in the greatest job ever begun in the botanical world, and I feel that it is an honour to have had anything to do with that job."

It is a sad circumstance that Mr. Mathews should have lost his wife so soon after his retirement. Mrs. Mathews died unexpectedly after a short illness at their home in Newlands on 9th December. Members of the Botanical Society and of the staff and employees of Kirstenbosch attended her funeral.

\* \* \* \* \*

The Curatorship of Kirstenbosch, rendered vacant by the retirement of Mr. Mathews, was filled in April by the appointment of Mr. F. W. Thorns.

Mr. Thorns' early experience was in England where he worked as apprentice, journeyman and foreman in various large private gardens including the celebrated garden of the late Sir William Lawrence, President of the Royal Horticultural Society. He then studied at the Royal Botanic Gardens, Kew, for two years, obtaining certificates in all his subjects. From the Royal Horticultural Society he obtained a first class certificate in Horticulture. He then became Assistant Superintendent of the Government Gardens, Khartoum, Sudan. In 1931 he was appointed Botanical Assistant in the Parks and Gardens Department of the Durban Corporation, and this post has given him control of the Durban Botanic Gardens during the last four years.

Mr. Thorns has the sincere good wishes of the Botanical Society for success in the position of great responsibility and opportunity which he now occupies.

The Botanical Society may congratulate Mrs. L. Bolus, who was for a time its Honorary Secretary, on the recent conferment upon her of a doctorate *honoris causa* by the University of Stellenbosch. This recognition of Dr. Bolus' scientific work upon the South African flora is well-deserved and well-timed: and Kirstenbosch may be permitted to share in the honour to the extent of its association with Dr. Bolus' work, especially during the last ten years in which the Bolus Herbarium, founded by her late uncle Dr. Harry Bolus, and of which she is Curator, has been in close geographical touch with the Gardens.

Dr. Bolus' botanical work has of recent years been devoted largely to the group Mesembryaceae, to the knowledge of which she has added enormously. In the second volume, just completed, of her "Notes on Mesembrianthemum and Allied Genera," which has been published in 27 instalments extending over more than six years, she has described no less than 754 new species: in addition she has published many *novitates* in other groups and has given a great amount of guidance to similar work on the part of her assistants in the Bolus Herbarium. Besides this work on the scientific side she has done much to popularise the knowledge and appreciation of the wonder and beauty of the South African flora, and to inculcate the idea of protection. As an example we may refer to the first and second "Books of South African Wild Flowers," for the text of which Dr. Bolus is responsible.

\* \* \* \* \*

The "Second Book of South African Wild Flowers" has recently been published by the Specialty Press, Wynberg. (Price 21/-). As a pleasant introduction to our flora this book, taken in conjunction with the "First Book" (published eight years ago and now unfortunately out of print), can be warmly recommended. Its "appeal is chiefly to the young through their elders." It is a handsome volume, well printed and strongly bound. It contains many of Miss Dorothy Barclay's paintings and of Mr. E. J. Steer's photographs, as well as drawings in line and colour by the late Miss Mary Page and Miss B. Carter, and photographs by Mr. R. A. H. Flugge-de Smidt and Dr. T. N. Leslie: so that its visual appeal is strong. In the text Mrs. Bolus has taken a botanical outline and has filled it in with all manner of details, historical, geographical, literary, naturalist and explanatory, so that the bare facts are clothed with a rich pattern of affectionate interest. It is definitely a book to possess

for oneself and to give others. More than this, it is, alas, a memorial to a flora that is fast vanishing and a call to us all to save it from destruction even at the eleventh hour.

\* \* \* \* \*

Mr. J. B. Taylor, Vice-President of the Botanical Society, has given £500 to the Gardens "as a mark of his appreciation of the valuable work being done at Kirstenbosch," and in particular for the support of the wild flower section of the work. This donation is very much to be welcomed and will be of great service in the development of the Gardens: the mode of using it is at present under consideration. Mr. Taylor at the same time gave a similar sum to the Caledon Horticultural and Wild Flower Society for the support of the Caledon Wild Flower Garden which has been so successfully developed in the last few years.

\* \* \* \* \*

Considerable changes will probably take place at Kirstenbosch in the next year or two. The reconstruction of the motor road through the estate towards Constantia Nek involves a decision as to the exact width to be reserved for Divisional Council purposes: this has been fixed at 60 feet. The Trustees have agreed to hand over the necessary ground to the Council, and along the whole extent of the Kirstenbosch section of the road the fence lines will be defined. Another result of the widening of the roadway and of the construction of the road itself on modern lines with superelevated curves will be to render the present main Entrance more dangerous to traffic entering or leaving the Gardens. It has therefore been decided to close the existing Main Entrance for vehicles, leaving it for pedestrians only, and to construct a new main entrance elsewhere. A site has been chosen immediately to the south of Window Gorge Stream. Adequate gates, well set back from the motor road, will be erected, and a new drive will be made leading to the parking area in front of the Tea House. Adjoining the site a cottage is now being built which will accommodate a member of the Gardens' Staff and will serve as a gate lodge. The large triangular area, about six acres in extent, whose corners are the present entrance, the Tea House and the new entrance, will be laid out as part of the Gardens' cultivated grounds.

\* \* \* \* \*

Another piece of development at Kirstenbosch which will shortly be undertaken is the extension of the Succulent

Garden. The site for this is to the south-east of the existing rockwork. A sum of £300 has been placed at the disposal of the Trustees by the Botanical Society from its Life Members' Fund for this much needed extension. It may be recalled that the whole of the construction of this very important section of the Gardens has been financed from the same source. The Succulent Garden is a noteworthy example of the practical value of the Botanical Society in the service of the National Botanic Gardens.

\* \* \* \* \*

The Gardens are indebted to the Cape Horticultural Society for the proceeds of a Show of South African Flowers which took place in the City Hall, Cape Town in September. Kirstenbosch set up a large display of specimens in vases, and Whitehill occupied the centre of the floor with a rockery of karoo stone planted with succulents. There were also other exhibits of native flowers grown in private gardens, decorative classes, a Hermanus exhibit (staged by Kirstenbosch), a wild flower play, and other interesting features. The Horticultural Society has handed an amount of £60 to the Trustees which has been divided proportionately between Kirstenbosch and Whitehill. Moreover the Show gave many people an opportunity and an impulse to become new Members of the Botanical Society.

\* \* \* \* \*

By arrangement with the Cape Peninsula Publicity Association a weekly supply of cut flowers has been sent from Kirstenbosch to the Cape Pavilion at the Empire Exhibition at Johannesburg: these have been skilfully arranged in large bowls and have attracted a great deal of attention, and contributed much to the decoration of the interior of the building. A large number of silver-leaves obtained by the Association from Kirstenbosch were used singly in cellophane envelopes as souvenirs, and were a very popular feature with visitors.

\* \* \* \* \*

We reprint a valuable article on "Our Wild Flowers," by Mr. F. Guthrie of Caledon, which was originally published in the *Caledon Venster*. The article will be read with interest as a reasonable and temperate summing-up of the problem of wild flower protection, especially in view of the fact that the Administrator of the Cape Province proposes to introduce new legislation on the subject in the Provincial Council in May, 1937. The object of the Draft Ordinance is to reduce the waste

and destruction of the more beautiful elements of our flora caused through commercial exploitation. Various new principles are adopted: considerable simplification in practice should result, and the co-operation of the police in enforcing the law should be rendered less difficult and uncertain. The Administrator is in consultation with the Wild Flowers Protection Conference Committee with regard to the problem involved; and though the Botanical Society has been unwilling to take full responsibility for matters of wild flower protection, it is largely represented on the above Committee. The aims of the Botanical Society — namely the support of Kirstenbosch and Whitehill — are so closely allied to the ideals of wild flower protection that Members will take a very special interest in the proposed legislation when it is finally drafted. Briefly the new draft ordinance will secure (a) the protection of all wild flowers with certain specified exceptions, (b) the responsibility to be upon the purchaser as well as on the seller, (c) the prohibition of hawking, (d) the encouragement of cultivation. The Botanical Society advocated legislation on these lines several years ago.

\* \* \* \* \*

The recent proclamation of the Kirstenbosch portion of Van Riebeeck's Hedge of Wild Almond as a National Monument has made it desirable to re-publish an excellent article by Professor Walker which appeared in *The Annals of the Bolus Herbarium* in 1915 and has been rather inaccessible to readers. This remarkable relic defining the first boundary of the European Settlement at the Cape, and planted in 1660, is still in a flourishing condition at Kirstenbosch, and can also be traced along the upper or southern boundary of Bishopscourt Estate for a considerable distance. Unfortunately, apart from two small fragments of the Hedge in the Hen and Chickens Estate and the Highwick Estate, nothing seems to have survived suburban development in Claremont and Rondebosch. It is sincerely to be hoped that due care may be taken of the Hedge in any scheme of subdivision and building that may take place in the Bishopscourt Estate: and it may be suggested that this portion also, as well as the Kirstenbosch section, should be included as part of the National Monument.

\* \* \* \* \*

Mr. Thorns, Curator of Kirstenbosch, contributes an article describing some of his first impressions of the Gardens. His paper will be read with much interest,

and it is to be hoped that readers will be helped to realise some of the extraordinary wealth of material that the Gardens contain and its value for decorative gardening. The opportunity is taken to publish two photographic plates showing *Leucospermums* at Kirstenbosch, which as Mr. Thorns says "can compete with all comers for the distinction of being the best flowering shrubs in the world."

\* \* \* \* \*

The establishment at Kew of a new house for the display of South African succulent plants is an event of considerable interest. Sir Arthur Hill, the Director of Kew, has kindly contributed an article on the subject to this *Journal*, and by kind permission of the *London Times* we are able to publish two photographs taken inside the house. From these succulent enthusiasts in South Africa will be able to recognise the success which has attended the cultivation of succulents at Kew, and especially the fact that the natural forms of the plants have been so little modified by the artificial conditions in which they are grown. The new house is a worthy companion to the admirable house for American succulents established at Kew by Mrs. Sherman Hoyt a few years ago.

\* \* \* \* \*

In an interesting article on "The Stick Insects of the Cape Suburbs," in number three of "*The Cape Naturalist*" (July, 1936), Dr. W. P. Le Feuvre ranks gardeners among the many enemies of these entertaining insects. This he says is due to "an idea that a blackened hedge is due to the insects' feeding proclivities, whereas others better qualified to judge attribute the gradual death of certain portions of the hedge to subterranean contact with iron-stone, or else with potclay, the latter causing the roots to be water-logged. When 100 stick insects disported themselves on my hedge the growth of the hedge was in no way hindered, either then or since." This number is mainly devoted to insect life, a subject in which gardeners are perforce interested, and botanists will be pleased to see the charming account of the life and botanical activities of the late Dr. W. F. Purcell, written by his friends Mrs. Bolus and Dr. E. B. Fuller. It is obtainable from Mrs. Anderson, Southway, Pinelands, post free for sevenpence (in stamps or postal order).

The publication of "*The Cape Naturalist*" is only one of the activities of the Cape Natural History Club. The Club is in a vigorous condition with a large membership and a large turn-out at the meetings, lectures and excursions that it arranges. Mr. A. Middlemost, of



Kirstenbosch, is Honorary Secretary, and the subscription is a low one. There is also a flourishing Junior Section for children, which has meetings and outings, this being run by Miss M. Johns, who is teacher of Nature Study at Kirstenbosch. Both sections are doing excellent work in the pleasantest way.

\* \* \* \* \*

The recently published Report of the Department of Agriculture and Forestry contains much that is of great interest to those who are convinced of the overwhelming national importance of the preservation of the indigenous vegetation of our mountains. The following paragraphs may be quoted (from "Farming in South Africa," Dec., 1936, p. 501):—

" . . . Great areas of Crown land, which were purchased with a view to water conservation, especially in the winter-rainfall area, have been brought under the control of this Department of recent years, while in other parts of the country extensive areas of mountain land are kept for the same purpose. These reserves are situated mostly in extremely broken parts and are inaccessible and difficult to control. The main object is to protect, as far as possible, the catchment areas on such reserves, by subjecting them to more intensive supervision and extending gradually the system of fire-belts.

"Generally, during the past year, these efforts of the Department have been attended by a considerable measure of success, because, notwithstanding many mountain fires in different parts of the country, catchment areas on forest reserves have escaped serious damage, with the exception of the catchment area in the Cedarberg. Mountain and veld fires, however, still remain the most important factor, which deprives catchment areas of their vegetation, and so long as grazing is permitted on Government reserves, this question cannot be placed on a satisfactory footing. Although the Department is reluctant to restrict grazing facilities where farmers can benefit therefrom, it may thus be necessary in the interests of the country as a whole, to consider whether grazing on forest reserves should not be prohibited."

We cannot too strongly urge the Government to adopt the policy mentioned above, to which they are being impelled by consideration of natural interest, namely to *prohibit all grazing on forest reserves and so remove the chief cause of veld fires*. Surely there are no good reasons for hesitating to take this step, for the safety of the plantations themselves as well as for the preservation

of the natural vegetation and all the benefits it brings to the country. The abolition of stock grazing from the crown lands and forest reserves of the Cape is a vital necessity from the public point of view. And it may be added that every opportunity should be taken by the Government to resume possession of privately owned portions of mountain catchment areas, imprudently alienated in the past, and now merely used for the support of a few scrub animals at enormous cost to the community.

\* \* \* \* \*

The Report continues, on the subject of nature reserves: "The policy of the Department to set apart for nature and flower reserves certain land falling under its control, has been continued during the year and various new areas have been set aside for that purpose. Not only are these reserves of great value for the preservation of rare plant species, but they also assist materially in the safeguarding and protection of catchment areas."

The policy thus recorded is one which should be warmly welcomed. The only criticisms that may perhaps be offered are firstly that the nature reserves as delimited are too small and do not necessarily enclose the rare and exceptionally interesting species: and secondly that the *whole* of the forest reserves (apart from the "utilitarian" plantations) should be nature reserves. The main requirements are the same in both cases — namely the exclusion of fire, grazing and exotic weeds. The policy of the Department should be a whole-hearted one, with the simple purpose of conserving the natural vegetation of the areas under its control.

\* \* \* \* \*

The Trustees of the National Botanic Gardens have recently established a Provident Fund for the benefit of members of the Kirstenbosch staff. This takes the form of an endowment insurance in each individual case, the member and the Trustees in general contributing equal shares, based on salary, of the premiums. The Southern Life Association has been appointed official insurers to the Trustees for this scheme.

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The Minister of the Interior has appointed Mr. Justice E. F. Watermeyer as a member of the Board of Trustees of the National Botanic Gardens, to fill the vacancy caused by the death of Sir Lionel Phillips.





PLATE II. South African Succulents at Kew.

*Photo: The Times.*





PLATE III. South African Succulents at Kew.

*Photo: The Times.*



*The Journal of South African Botany* has completed its second volume, 1936. The contents include valuable papers on South African botanical subjects, by Professor F. E. Lloyd (on the trap mechanism of *Utricularia*), Professor J. Phillips (on fire in vegetation), Captain T. M. Salter (on *Oxalis* and *Erica*), Mr. G. W. Reynolds (on *Aloe*), Miss W. F. Barker, Miss E. E. Esterhuysen, Professor R. S. Adamson, Dr. Margaret Levyns, Dr. John Muir, Miss A. A. Obermeijer, Professor C. E. B. Bremekamp and Professor R. H. Compton. The articles are illustrated by numerous photographic plates and line drawings; and reviews and abstracts of other publications of South African interest are included. Members of the Botanical Society are reminded that they have the privilege of subscribing to the *Journal of South African Botany* at approximately 25% reduction in price, namely 15/- for

the complete volume of four Parts, or 5/- per Part. A subscription form is enclosed.

\* \* \* \* \*

The annual Seed Lists issued by Kirstenbosch and Whitehill are sent to Members of the Botanical Society with this *Journal*. Members are requested kindly to note that (a) seeds are distributed to them free, but only upon request being made; (b) plant material other than seeds cannot be sent out; and (c) Whitehill seeds are available only to Whitehill subscribers. For advice on the cultivation of South African plants Members are referred to previous numbers of this *Journal*. Further, a book on the subject is in preparation, the author being Mr. J. W. Mathews, until recently Curator of Kirstenbosch, and the Botanical Society is making arrangements to distribute copies to Members.

## South African Succulents at Kew.

By SIR ARTHUR HILL.

THE Royal Botanic Gardens, Kew, have for many years possessed a very fine collection of South African Succulent plants, which have been sent from time to time by kind donors in South Africa and elsewhere. The late Professor H. H. W. Pearson greatly enriched our collections and we are much indebted to the following for many interesting specimens: The National Botanic Gardens, Kirstenbosch; The Botanic Garden, Stellenbosch; Mrs. L. Bolus; Miss M. Wilman, Kimberley; Mr. E. G. Bryant, Prieska; Mr. N. S. Pillans; Mr. F. R. Long, Port Elizabeth; Miss K. C. Stanford; The High Commissioner for South Africa; The Union of South Africa Floral Exhibit at the Royal Horticultural Society's Hall, 1933; the late Dr. R. Marloth; Mr. F. Frith of the South African Railways; Mr. R. A. Dyer; Mr. A. Lovejoy, Durban; Messrs. Hurling & Neil, The Highlands Rockeries, South Africa; the Hon. Mrs. E. F. Ryder; Sir Cecil Hanbury; Dr. Hutchinson, Kew; Mr. G. Elisha, N. London; and Mr. L. Denny. The collection has also been added to by private gifts and purchases from other amateurs and nurserymen both in England and on the Continent.

Until recently this fine collection of South African Succulent plants was not visible for inspection by the public, as the plants were being grown in small pots in one of the private pits to which, owing to the narrowness of the pathway, it was impossible to allow the public access. It had

long been desired to display these plants to the public, and thanks to the generosity of one private donor in particular, and to others associated with him, a new house has been erected to commemorate King George's Silver Jubilee.

The house is 67 feet long by 13 feet wide, and is built of teak. As it runs east and west, it gets the full benefit of all the sunshine that may be available at Kew. Instead of the ordinary staging common in greenhouses, concrete shelves have been constructed which are faced with sandstone and covered to a depth of six to nine inches with rubble below and soil above, in which the various specimens are planted amongst appropriate stone. The stone has been carefully matched with the Karoo sandstone and was quarried in the Liverpool district. Very fortunately the Triassic rock in the Liverpool area is partly a fine-grained, pinkish sandstone and partly conglomerate with rounded water-worn pebbles; the rounded pebbles closely resembling both in shape and colour some of the Lithops and Conophytums which have been planted among them.

Here and there quartzite outcrops have been arranged running across the bench, simulating the quartzite outcrops found in the Karoo, and here the *Gibbaeums* and *Rimarias* with whitish or greyish-green leaves, and also *Anacampseros*, have been planted and appear much as they do in their native surroundings.

The system of planting adopted is to group together similar plants; as, for example, patches of *Conophytums*, almost invisible at the moment, as they are resting below their dried skins; of *Gibbaeums*, of *Pleiospilos*, of *Anacampseros* and of *Haworthias*, the various types being kept together in each patch, with larger plants placed at intervals. This arrangement permits the comparison of closely related species without the formality attained by a strictly botanical arrangement. The mimicry plants are mostly accommodated on flat sites or gentle slopes, the *Haworthias* and *Aloes* on rocky elevations, in places looking very much at home in cracks and along ledges.

The plants cover a very wide range and include all the important genera which occur in South Africa. *Conophytums* and *Lithops* are very numerous, many of these being type specimens on which the late Dr. N. E. Brown based his descriptions; there are large plants of *Mitrophyllum cognatum* and a good specimen of *M. grande*; *Frithia pulchra*, with magenta flowers, looks quite happy in the sand. Among

the *Haworthias*, *H. Maughanii* and *H. truncata* are buried to the tops of their leaves as they would be found growing in their native habitat; there is also a fine specimen of *Haworthia attenuata* var. *clariperla*. *Euphorbias* are represented by good examples of *E. horrida*, and other species.

The closely related *Monadenium succulentum*, a new species found by the Director when in South Africa and only just described, is represented by two fine examples. Succulent *Senecios*, *Kleinias*, *Stapelias* — near which is planted *Senecio stapeliaeformis* — *Crassulas* and *Adromischus* are all included, as well as the succulent vines, *Cissus Juttae* and *C. Bainesii*, while the rare *Pachypodium succulentum* and *P. namaquanum* also find a place.

In the selection of stone and the general geological layout of the house, the late Director of the Geological Museum gave valuable help. Thus, as far as it is possible to do so, the general appearance of the house gives a very fair representation of the Karoo and its characteristic vegetation.

10th September, 1936.

## An Old Cape Frontier.

By E. A. WALKER.

CAPE COLONY has had her fair share of variety in frontiers. True, she has never sheltered herself behind the rigid magnificence of a great wall, nor was the canal which was to sever the Peninsula from Africa ever dug; but apart from these alternatives, she has run through the list from wire fences to lines of latitude, and from shallow rivers to belts of neutral territory. The earliest and perhaps the most interesting boundary line was the hedge of wild almonds and thorn bushes with which van Riebeeck sought to enclose "the whole settlement, with its agriculture and forests . . . as in a half-moon<sup>1</sup>."

Part of this old frontier is still marked by a high almond hedge which runs from the banks of the Liesbeeck in the National Botanic Gardens to the Hen and Chicken rocks. Thence it once turned northward and ran towards the mouth of Salt River. Possibly scattered fragments remain in suburban gardens, but as a hedge, the frontier survives only on its southern side. In its early stages again it is much broken, and throughout its main course it is overrun with trees and undergrowth. As an ancient landmark in Cape history it is worthy of a better fate.

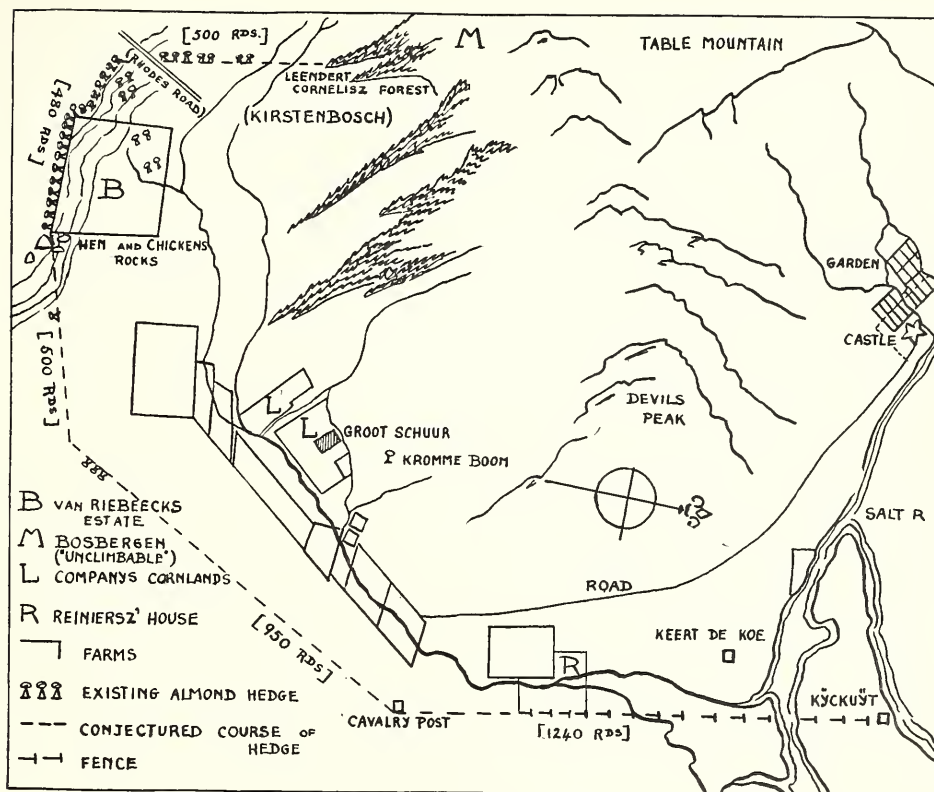
The hedge formed van Riebeeck's attempt to solve the apparently insoluble. On the one hand he was ordered to keep on good terms with the Hottentots with a view to the cattle trade; on the other he had to protect the Company's cattle and the farms of the Free Burghers, which in 1659 stretched along both banks of the Liesbeeck as far as the Commander's own vineyard and cornlands "lying on the farthest frontier" on the slopes of the Bosheurd<sup>2</sup>, that hill "which has a view over the whole flat between False and Table Bays<sup>3</sup>." Weary of calling out the burghers to assist the troops against "dull, stupid, lazy and stinking natives" who yet contrived to escape his ambuscades and "knew how to avoid the bullets by dodging<sup>4</sup>," van Riebeeck turned to artificial defences for better security.

<sup>1</sup>Van Riebeeck's *Journal*, Part III, p. 111, translated by J. C. V. Leibrandt.

<sup>2</sup>The high ground running eastwards from Kirstenbosch towards Wynberg Hill. Van Riebeeck's estate was also called Bosheurd, afterwards Protea, and now Bishop's Court Cp. Theal, *History of S.A. before 1795* (ed. 1909), II. 87, III. 498.

<sup>3</sup>*Journal*, III. 15.

<sup>4</sup>*Journal*, III. 27.



The defences were twofold. Towards the close of 1659 a fence of poles was built from the sea-shore near the mouth of the Salt River to Jan Reiniersz' house at the junction of the Liesbeeck and the spruit of the Salt River; beyond that point the Liesbeeck was cleared of weeds and the banks made steeper, while from the Kromme Boom the fence was begun again and ran for 600 roods up to the primeval forest which in those days clothed the eastern slopes of Table Mountain. It was this fence which was strengthened by the famous blockhouses: Kijckuijt on a high sand-hill near the sea-shore "between Salt River and the beach"; Keert de Koe between Salt River and the Liesbeeck; Hond den Bul at some point nearer the forest.

All these barriers were on the Cape Town side of the Liesbeeck excepting the line from Reiniersz' house to the sea; but it was the farmers living beyond the river who stood most in need of protection. Accordingly the order went forth that all farms were to be fenced and "all open lands

not belonging to anyone shall for greater security be fenced . . . with pega-pegas or bitter almond trees<sup>5</sup>." Van Riebeeck had the area of the settlement measured off from Kijckuijt around the lands of the Freeman "to the principal projected cavalry watchhouse and over the back of the Bosheurd as far as the Bosbergen to the forest of Leendert Cornelisz inclusive." Round this line a strip one rood in breadth was to be ploughed and planted with bitter almond trees and all kinds of thorn bushes "so that it will be in the form of a fence or enclosure, just as in Germany . . . some Counts and Lords mark off their jurisdictions<sup>6</sup>."

The Company's servants and burghers were assisted in their labour of bringing the trees from the banks of the mountain streams, where the bitter almond still grows, by some wrecked French sailors who, partly to pay for their keep but mainly "for pregnant reasons," were pressed into

<sup>5</sup>*Journal*, III, 90—1.

<sup>6</sup>*Ibid.* III.; *Letters Despatched* III, 140.



the service<sup>7</sup>. Van Riebeeck, like other Governors after him, evidently believed that a Frenchman was least dangerous when he had most to do. By December, 1660, the Commander was able to speak of "our present limits which have been already planted with bitter almonds as a protecting fence<sup>8</sup>."

The hedge proved hardly more effective than other South African boundaries: the Europeans insisted on getting out; indeed while the work was progressing, van Riebeeck was riding out "to see how far that fence might be extended<sup>9</sup>"; while in spite of strict orders to keep "behind the Bosheurd" and "outside the landfence now being planted<sup>10</sup>," the Saldaners grazed their cattle within the boundary and the Kaapmen, "camped near the Bosheurd, had trodden down the whole plantation<sup>11</sup>." Van Riebeeck's attempt at segregation was hardly a success.

No certain answer can be given to the question whether the almond trees in the existing hedge were planted in 1660. The trees themselves give no definite clue to their age. On the other hand the shoots are in many cases more than 20 feet high and at the base thicker than a man's body. Bush-fires from time to time must have swept away all that showed above ground; there are signs that part of the hedge has suffered so recently. The roots are certainly much older than the shoots.

None of the maps available show the hedge and fence as a whole<sup>12</sup>. On the other hand the map of 1660—1 shows part of it, while the existing hedge fits into the detailed measurements given by van Riebeeck himself of the area thus surrounded. The entire circumference was 3673 roods; that is from the sea at Kijkuijt to the "principal projected cavalry watch-house," 1320 roods and for the rest 2353 roods. The later map of 1660—1 shows the line of fencing running from the sea-shore to the cavalry post (Muijterborst) which had by that time been established near the Rondebosch Camp Ground, a distance of 1240 roods. From the watch-house to the Hen and Chickens rocks at the corner of the Bosheurd estate, where the existing hedge runs, is 1450 roods. Some 980 roods have to be accounted for. The hedge at the present moment runs along the boundary of van Riebeeck's estate for 480 roods to a point near the Rhodes road where it turns off at an angle of about 110°. A line of 500 roods laid out at the necessary angle on the map of 1660—1 reaches Leendert Cornelisz forest. This last portion survives to-day as a broken line of hedge ending on the banks of the Liesbeeck in the Kirstenbosch estate.

The estate of Bosheurd was certainly protected by a hedge of wild almonds; it is still protected by such a hedge; that hedge was the boundary of the settlement, and the present hedge holds to the top of the ridge, the natural and only place for a boundary if a view over the whole of the Flats was to be had thence. The only conclusion is that if the existing bushes were not planted in 1660, they are successors of those that were so planted. In view of the size of the roots there is no reason, botanically speaking<sup>13</sup>, why the hedge should not be the remains of the living boundary planted by the Cape's first Commander.

## POSTSCRIPT.

The "wild almond," of which the hedge described above by Professor Walker is composed, is a native proteaceous shrub, *Brabeium stellatifolium*, L., the only species of a genus endemic in the south-western coast region. It has the habit of a shrub which in favourable situations attains a height of 20 ft. or more. The branches, arising from a "rootstock" which in old plants becomes very massive, frequently attain a diameter of as much as 1½ or 2 ft. and a length of 30 or 40 ft.; in such cases, however, they are usually prone, and in this way a single bush may cover a very large area. Growth is rapid and the wood somewhat soft, containing much water, and of a reddish colour. According to Pappe the wood "is fit to be used for ornamental joiners' and turners' work. As yet it has been little employed except as firewood."

It is particularly partial to the neighbourhood of water and is abundant on the banks of mountain streams, where it attains its most luxuriant form. It nevertheless grows quite readily in comparatively dry situations in which, however, it is doubtful whether it occurs naturally. Once established it is eradicated with difficulty. The plants constituting the hedge now under notice have without doubt been cut or burnt to the ground many times since they were planted. But after each catastrophe the rootstocks have produced new growths of aerial branches.

<sup>7</sup>Journal, III, 136.

<sup>8</sup>Ibid. 198.

<sup>9</sup>Ibid.

<sup>10</sup>Ibid. 176, 269.

<sup>11</sup>Ibid. 307—8.

<sup>12</sup>Nos. 807, 808. Copies in the Cape Archives; originals in the Royal Archives at the Hague.

<sup>13</sup>I state this on the authority of Dr. H. H. W. Pearson, Director of the National Botanic Gardens.



*Photo: Cay's Photo Service.*

PLATE IV. Presentation to Mr. and Mrs. J. W. Mathews,  
Kirstenbosch: 20 April, 1936.

Mr. C. J. Sibbett, Dr. L. Bolus, Mr. F. W. Metelkcamp, Mrs. Mathews, Mr. Mathews, Professor R. H. Compton,  
Mr. W. Duncan Baxter, Sir James Rose-Innes, Dr. D. Bennie Hewat.





PLATE V. Kirstenbosch: The Terrace and Devils Peak. *Photo: R. H. Compton.*



Consequently it is impossible to obtain direct botanical evidence as to the age of these bushes. That they constitute an artificial hedge is clear from the nature of the line followed along a ridge bearing no other plants of this species and where the conditions are those in which demonstrably wild plants are never found. Probably none of the hedge-plants bears an aerial branch with more than 20 xylem-rings. But the massive misshapen rootstocks, usually many feet in horizontal diameter and of unknown depth, show no characters which can be used to discredit the current tradition that this is the remains of the original hedge of van Riebeeck.

The common name "Wild Almond" (cf. *Amygdalus aethiopica*, Breyne) owes its origin to the resemblance of the drupe to that of the true almond. Pappe states that the fruit "having been soaked for some days in water, is eaten by the natives, being obnoxious when quite fresh. The kernel when roasted is used as coffee."

H. H. W. PEARSON.

*Note.* A recent enquiry has been made through the correspondence columns of the Cape Argus as to the existence of fragments of Van Riebeeck's Hedge in the southern suburbs of Cape Town, and Miss W. F. Barker and I have investigated the various localities. The Hedge is perfectly clear from just above the Succulent Garden at Kirstenbosch to Kirstenbosch Nek and thence near the crest of Wynberg Ridge to the beacon on the top of Wynberg Hill and so on to the new reservoir at the Hen & Chickens

Rocks. Beyond that spot there are apparently only two fragments of the hedge still in existence — a solitary stump in the Hen & Chickens Estate, and a short line of trees across the angle between Tennant Road and Highwick Drive, Kenilworth. This latter fragment points directly towards Palmyra Road and the Camp Ground but even in Claremont Public Gardens there is no trace of the Hedge, and the rest of its route is now so much built over that it is unlikely that any other fragments survive.

The map which accompanies this article has been redrawn by Miss Barker from the one originally published by Professor Walker. The supposed line of the Hedge from Hen & Chickens Rocks onwards has been altered in accordance with the position of the above-mentioned fragments.

Another feature has been included in the map, namely the existence of a mass of Wild Almond Trees at Kirstenbosch Nek, and of a double alignment of them leading thence down the hill in the direction of Bishops court (formerly Van Riebeeck's farm); attention was called to this "avenue" in the *Journal of the Botanical Society*, Part XV, 1929, p. 5.

The Kirstenbosch portion of Van Riebeeck's Hedge has recently been proclaimed a National Monument by the Government, with the concurrence of the Trustees of the Gardens. It is for this reason that it has been thought desirable to reprint Professor Walker's article on this unique relic of the earliest settlement at the Cape.

R. H. COMPTON.

# Kirstenbosch: Some First Impressions.

By F. W. THORNS.

IT has often been stated that Kirstenbosch is a unique Botanic Garden and the newcomer finds much to support that claim. The situation of the Gardens, on the slopes of Table Mountain, with Castle Rock towering above, and the incomparable beauty of the Table Mountain range around, provides a setting that once seen can never be forgotten. And then the plants themselves are a unique collection. It is a little humiliating to find so many plants of real garden value that one has never encountered in gardens elsewhere. Seven short months of association with these does not allow the writer to deal with them in detail, but many have made a lasting impression.

Ursinias, Gazanias, Venidiums and other South African annuals are becoming well known all over the world, but are rarely seen in such drifts of colour as are provided in the Spring display at Kirstenbosch. The beautiful cloudy blue effects that are achieved by massing Felicias in their respective species; a distant prospect — again in blue — of Heliophila, and the wonderful colour mixtures of *Dorotheanthus criniflorus*, the annual Mesembryanthemum, must be seen to be appreciated.

Cape bulbs, Heaths and Pelargoniums achieved a certain prominence in horticultural circles long ago, but have waned in popularity in Europe owing to changes in gardening fashions and in economic conditions. Good collections of these are to be seen in their season, but considerable work has yet to be done with these groups.

Mention must be made of the numerous species of Oxalis, many of which flower in the winter when few other flowers are to be seen. Not many are in general cultivation, and it is a real joy to discover this charming genus.

Undoubtedly the most striking and typical group of Western Province plants is provided by the Protea family, and where else can they be seen in such variety as at Kirstenbosch? Many of them are in the top flight as regards decorative value; Leucospermums alone providing half a dozen species which can compete with all comers for the distinction of being the best flowering shrubs in the world. *Leucospermum nutans*, *L. Bolusii*, *L. reflexum*, and *L. tottum* are species which are particularly noted, whilst the Proteas themselves would provide a formidable list of highly decorative plants which would be swelled still further by Aulax, Serruria, Leucadendron and Mimetes.

Watsonias are to be found in flower during eleven months of the year, the numerous species and hybrids providing a great range of colour; from white, through apricot shades to red and scarlet, and finally through purplish shades to at least one almost blue. To attempt to describe these in detail is impossible here, but their value as garden plants cannot be over-emphasised.

It is remarkable that so few of the plants mentioned above are in general cultivation. Granted that many of them are not hardy in cold climates, nor are they as easy to cultivate as the ubiquitous Poinsettias, Bougainvilleas, Crotons, etc., of most sub-tropical gardens, but there must be many districts where soil and climate would be found to suit them, if only their cultivation were attempted.

The rock-garden, alone, would provide sufficient material for months of study and many written articles. The completed portion of this garden is extremely well constructed, and the collection of succulents is of tremendous variety. In spite of somewhat unfavourable climatic conditions, the standard of cultivation is high, and at no period of the year is this part of the Gardens devoid of interest.

Succulents do not appeal to everyone, but their varied form and peculiarities of structure, brought about by the moulding influences of environment, make them of absorbing interest to the student of vegetation. Some of them, particularly the Aloes and Gasterias, are of definite decorative value, and these, together with Cissus species from South West Africa and various flowering bulbs, Crassulas and Kalanchoes, make a show of colour throughout the year. Then the succulent enthusiast will find plenty of interest in the Stapeliads, which are well represented and which thrive in spite of heavy winter rains; the great variety of Euphorbias and Haworthias, and the Conophytums, Argyrodermas and the many xerophytes from the Karoo and the deserts of the South West.

No better background to the rock garden can be imagined than the existing Silver Tree forest with its ever-changing undergrowth flowers, of which the most striking are the Watsonias, *Lobostemon fruticosus*, and at the time of writing, *Aristea capitata*.

The South African representatives of Cycadaceae, namely Encephalartos and Stangeria, have received special attention at Kirstenbosch, the slopes of the amphitheatre being

planted with a remarkably good representative collection. They are drawn from widely divergent localities. *Encephalartos cycadifolius* from Transkei mountains, *E. horridus* from South Eastern coastal areas, *E. Altensteinii* from Natal bush, *E. kosiensis* from Kosi Bay, and many others are growing and thriving together here. All are from summer rainfall areas, and yet appear to be quite at home, excepting for the fact that in spite of well-developed cones being formed on male and female plants, fertile seeds are rarely, if ever, produced. This is attributed to the absence of the small insect which is always found on cycads in their native habitat, and which is considered to be responsible for their fertilisation.

Coming from the Eastern coast-belt one is particularly struck by the plants peculiar to the Western Province, but at the same time one misses the indigenous trees of the summer-rainfall region. Decaying oaks and shabby pines are poor substitutes for the magnificent trees of *Trichilia*, *Strychnos*, *Celtis*, *Ekebergia*, *Mimusops*, etc., that are prominent features of Natal gardens and landscapes. Specimens of many Eastern trees have been introduced to Kirstenbosch, and are growing slowly, but the cold wet winters and dry summers do not allow them to thrive as they should.

"Summer rainfall" shrubs are a better proposition, and many are well established. *Burchellia capensis*, *Mackaya bella*, *Erythrina Humeana*, *E. acanthocarpa*, *Carissa spp.*, *Pavetta caffra*, *Alberta magna*, *Ochna spp.* and *Gardenia spp.* are old inmates and flower regularly, but they are in many cases slower growing and shorter jointed, and therefore more dwarfed and compact than is usual in their own localities.

It is disappointing to discover that *Erythrina caffra*, the "Kaffirboom", although well established, rarely flowers at Kirstenbosch. Those who have seen these trees in their glory in the dry Eastern winters will realise how much their defection is to be deplored, but will agree that on comparing the climate it can be understood.

These notes would be incomplete without some reference to the indigenous flora of the Upper Kirstenbosch Nature Reserve. Seen from a distance, the mountain slopes appear to be somewhat bare, and only a slight change of colour denotes the continual change throughout the year. Close inspection will show that the open slopes carry a great number of interesting and beautiful plants, *Ericas*, *Watsonias*, *Aristeas*, *Selago*, and *Micranthus* follow in succession during the year, and *Proteas* and *Leucadendrons* are usually to be found in flower. Higher up the slopes the more energetic will discover *Anemone capensis* in the spring, and several species of *Disa* in summer. Ferns are common in shady kloofs, and *Gladiolus* and *Pelargoniums* in the open. A stroll around the Contour Path will enable the visitor to see many of these and other plants in flower, particularly interesting being the riot of flowers which appear after pine woods have been cleared or burned.

The various gorges are thickly wooded and are always shady and cool. Few really large trees remain, excepting in places difficult of access, as woodcutters levied heavy toll here in the past. Few flowering trees are to be found, but in more open parts *Virgilia capensis* makes a good show with its masses of pink pea-like flowers, and in lower stretches shrubs of various sizes of *Podalyria calyptata*, when covered with pink flowers, form a beautiful picture.

There are a few shrubs indigenous to Kirstenbosch which are to be found in Natal coastal bush, and which occur, apparently, the whole way from Lourenco Marques to the Cape. *Halleria lucida* and *Grewia occidentalis* are two of these, and an interesting point arises. Are these particular plants unusually tolerant of changes in soil and climate, or are shrubs, as a class, more adaptable than other groups of plants? Should the latter supposition prove to be the correct one, it may be possible for many more of the flowering shrubs from Natal and Zululand to be introduced to cultivation at Kirstenbosch, thus making the Gardens still more attractive during the summer months, and more than ever entitled to the distinction that has been bestowed upon them.



# Our Wild Flowers.

WHY DRASTIC MEASURES SHOULD BE TAKEN FOR THEIR PROTECTION.

By F. GUTHRIE.

EVERYONE with any knowledge of the facts must realise that our native flora, especially in the South-West, is being rapidly exterminated and that, unless drastic action is taken to check this, the majority of the most beautiful species will be perpetuated only in coloured plates, on the specimen sheets in Herbaria or with the older of us, fortunate enough to have seen them growing in their native beauty, as sweet sad memories of a glory that has passed beyond recall. Some species may survive in our gardens, but for how long will they remain true to type when scientific horticulturalists are constantly striving to improve on nature by hybridisation?

Whatever steps may be taken to secure the preservation of our flora must be taken now — there is no time for delay — and must be drastic to be effective: half measures are useless. I am emphatic upon this because I am daily brought face to face with the material factors that are hastening the work of destruction, factors which the need of economic development render almost insurmountable.

Let us consider what these factors are and the possibility of combating them. For this purpose I propose to divide our wild flowers roughly into two classes:

- (a) Those found on the plains, wide valleys and marshlands.
- (b) Those found on the mountain ranges.

The former are disappearing at an alarming rate due to intensive cultivation and depasturing of the land. Many beautiful species that twenty or more years ago were plentiful are now, if not wholly lost, extremely rare, being found only in odd corners where the plough and the stock cannot penetrate. It is not the holding of an occasional Wild Flower Show nor even the ubiquitous flower seller that is responsible for this, but the ruthless hand of economic necessity. The cutting up of farms makes it imperative that every square inch of land shall produce a profitable crop and every blade of herbage nourish the farmers' stock. Hitherto impenetrable vleis, that harboured many of our choicest gems, are being drained, cleared and cultivated to provide potatoes, beans, onions and cabbages for the people's stomachs. These are hard facts that cannot be gainsaid or averted. It is too late to think of creating

reserves for this class of flower. There is little virgin soil left. To purchase good arable land of sufficient area and with the necessary variety of soil is beyond the scope of practicable politics. The cost would be prohibitive. Something might however be done by proclaiming all town lands flower reserves, but it must not be forgotten that these are the grazing grounds of the people's cattle and the butcher's sheep, whilst many towns in these parts let out portions for sowing purposes in order to augment the Municipal income. No, sad to relate, the day is fast approaching when the wild flowers of the veld will be as scarce as swallows in the wintertime.

## THE MOUNTAIN AREAS.

What of our mountain areas? Here, owing to the unsuitability of the soil for ordinary agricultural purposes and the comparative inaccessibility of many localities, the process of destruction is proceeding less rapidly.

Nevertheless there are factors at work which, if more slowly, are none the less surely denuding our mountain slopes, peaks and kloofs of their gorgeous raiment.

These factors are:

Firstly, the depredations of the professional flower-seller. Secondly, afforestation.

Thirdly, indiscriminate and continuous veld-burning, followed by intensive grazing.

In the Caledon district thousands upon thousands of morgen of the most prolific flower-bearing mountain slopes and valleys in the Elgin area have been planted with forest trees and the work is going on apace to the utter destruction of every form of native vegetation. What is happening here is happening in many other parts of the Union, for example in the Outeniqua Mountains near George and Knysna, in the Cederbergen and elsewhere. Again it is the economic factor that is playing its ruthless part. The juggernaut of economic necessity has no time for sentiment and crushes everything that comes in its path without mercy.

## THE TRADE IN WILD FLOWERS.

But worse than afforestation, which is at any rate limited to certain definite localities, is the trade in wild flowers which has assumed alarming proportions, giving employment to a

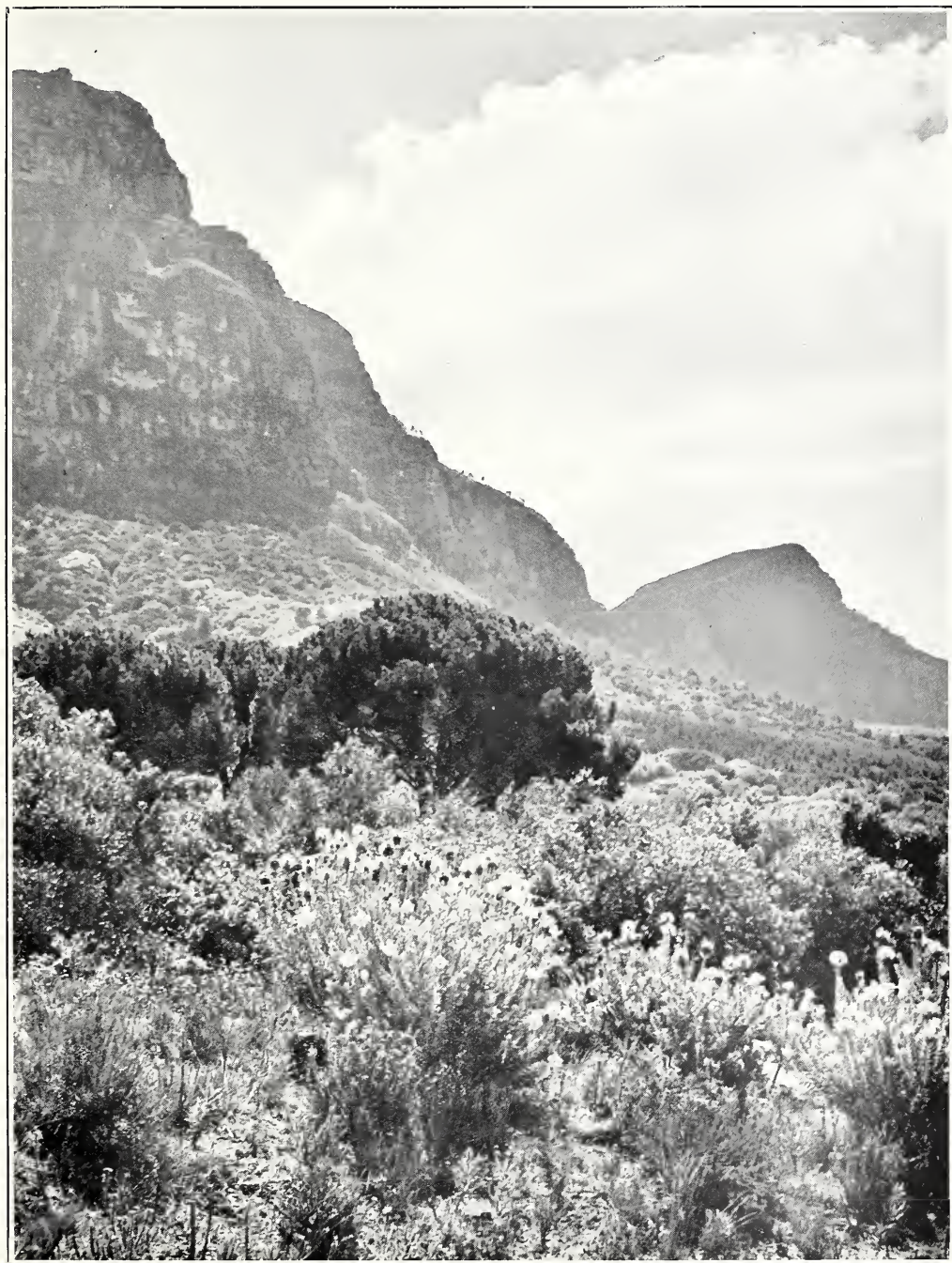


PLATE VI. *Leucospermum reflexum* at Kirstenbosch.  
(By permission of the Cape Peninsula Publicity Association).

*Photo: J. P. de Smidt.*



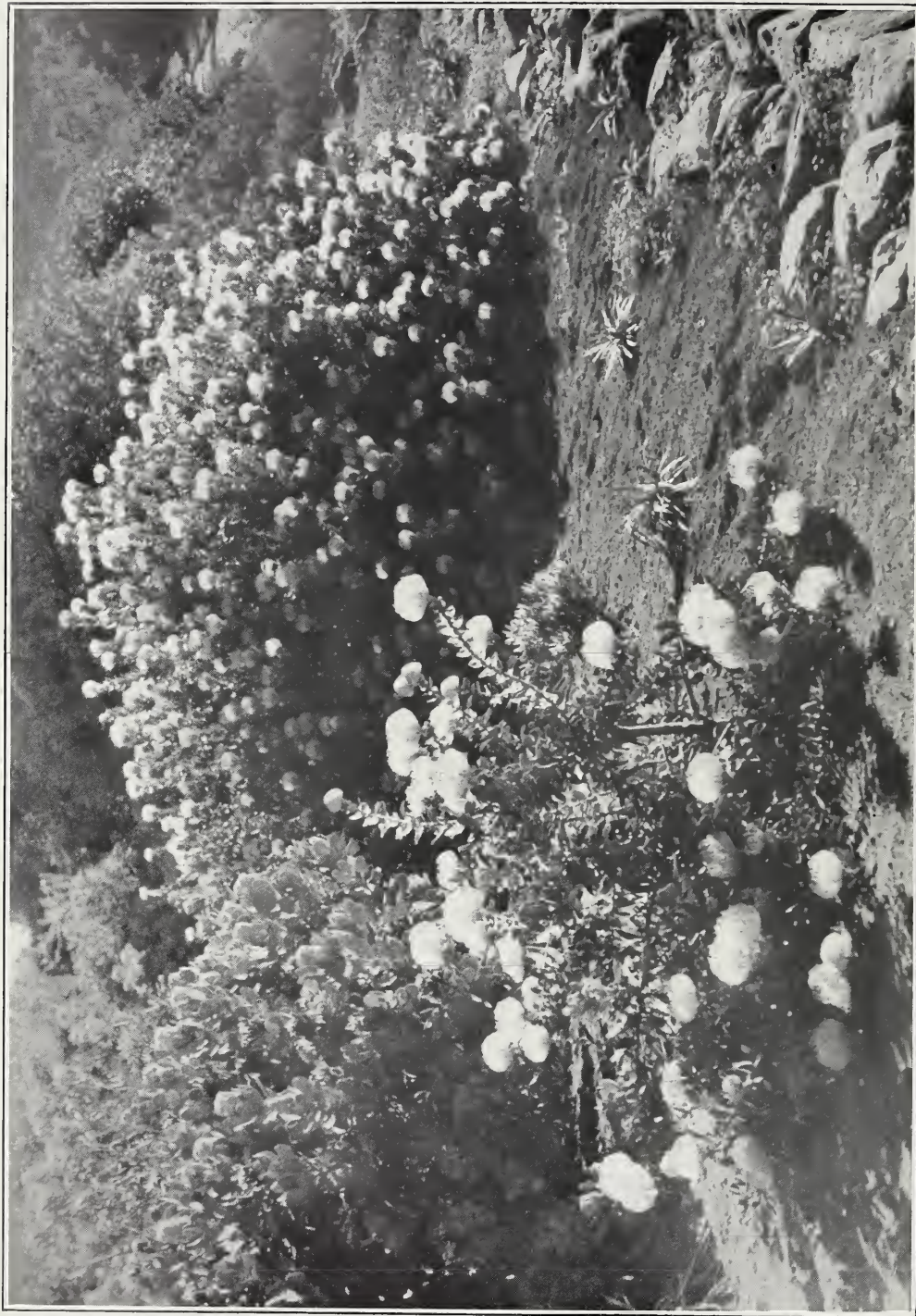


Photo: R. H. Compton.

PLATE VII. *Leucospermum nutans*, *L. Bolusii* and *Protea grandiceps* at Kirstenbosch.



large and ever-increasing number of people who live for to-day only, with little or no regard for to-morrow.

Improved roads and methods of transport render no place within two hundred miles of Cape Town immune from the depredations of the professional flower gatherer. Economists tell us that trade is regulated by the law of supply and demand. We, in these parts know where the supply comes from, but where is the market or demand? Can it possibly be that it is in greater Cape Town that those lorry loads of flowers, protected and otherwise, that leave this and adjoining districts week after week, year in and year out, are disposed of?

My friends in Cape Town may retort why do you allow your flowers to leave your district? I reply that with such assistance as the police can give us we do our best to prevent it, but with the Law as it is at present, it is a heartbreaking task. I am informed on good authority that a certain flower seller sends his lorry to Palmiet River Mouth near Hangklip regularly twice a week to collect the flowers gathered by his squad of pickers, who are more or less permanently stationed there. These flowers are ostensibly gathered on private property, but anyone who knows the neighbourhood will tell you that the great majority are gathered on Government land and demarcated or undemarcated Forest Reserve.

It is impossible with the Law in its present form for any private owner of mountain land to protect it from the depredations of the flower gatherer when his neighbour permits picking. The boundaries of mountain lands are seldom fenced or otherwise defined, and except when sheep are grazing, there is seldom left one in charge to prevent trespassing. Thus, if a neighbouring owner permits picking on his land, flower gatherers invade those of adjoining proprietors with impunity.

Some flowers are protected from sale, etc., but nevertheless they are gathered and find a market — not in Adderley Street, perhaps, but surely at the back doors in the fashionable residential suburbs of Cape Town.

Almost any day of the week, but especially on holidays, men, women and children are met with between the top of Sir Lowry Pass and village of that name selling wild flowers, many of them protected varieties. This is by no means the only locality where itinerant flower sellers carry on their trade.

#### VELD-BURNING.

Veld-burning, especially when followed by intensive grazing, is a difficult problem to deal with. A large proportion of the mountain area in this and other districts is

privately owned, having been purchased by farmers for the purpose of providing summer grazing for their sheep and cattle. It is useless for this purpose unless burned off at intervals, for sheep and cattle cannot feed on the coarse rank and sour vegetation, but thrive on the tender shoots that spring up after a fire. Here again we are faced with the economic question. I am told that Government leases vacant Crown Land for grazing. If this is so, the authorities must know that the area will be burned off by the farmer sooner or later to provide grazing for his stock. Undoubtedly injudicious veld-burning and intensive grazing must play a serious part in the work of destruction, in spite of the fact that many of our *Proteas*, *Watsonias*, and many other species flourish after a fire. Possibly the heat engendered and the access of sunlight cause the buried seeds to germinate and bring forth a surprising crop of young plants and the dormant bulb or rootstock to bloom with renewed vigour.

The mountains in the Cape Hangklip Area, which are largely owned by the Government, constitute one of the richest floral treasure houses in the Union. Why cannot this be set aside as a nature reserve? Many thousands of public money have been spent, and well spent, on game reserves. Millions have been spent on irrigation schemes, many of doubtful benefit, and millions more on unproductive branch railway lines.

Surely some small part of our surplus wealth could be profitably spent in perpetuating for future generations those wonderful floral gems which Providence has with such lavish hands endowed this land of ours.

Private enterprise cannot be looked to to accomplish much in this direction. Local authorities in many places are doing their best, but it is difficult for a small community to achieve anything substantial. Town Commonages are the grazing grounds of the livestock of the inhabitants. Lands are given out for sowing. In a few instances, such as at Caledon, the Commonage includes a considerable mountain area. This latter has been constituted a nature reserve and efforts are being made, with some success, to stock it with many proteas and other wild flowers of a suitable kind, but any one with practical experience will realise how difficult and costly is the task. The propagation of wild flowers is an art calling for skill, a close study of the characteristics of each species. The composition of the soil, aspect, altitude, environment, etc., call for powers of careful and intelligent observation. Men with the necessary qualification for this work are rare and demand good salaries. The collection of seeds and plants is an arduous and expensive task. It is clearly evident,

therefore, that no small country town can contribute to any considerable extent towards the perpetuation of our floral beauties. The most that it can hope to accomplish is to protect those flowers found growing within its boundaries, but even this calls for considerable expenditure on fencing, roads, construction and maintenance of firepaths, keeping down undesirable growths, and supervision, etc. This cannot be accomplished without funds.

#### A WILD FLOWER RESERVE.

Some £6,000 were spent by the Government in the Bredasdorp District to protect a small herd of Bontebok. No one grumbles, but flower lovers cannot be blamed for being envious of the good fortune of the Bontebok when they see patches of *Orothamnus* robbed and ruined, our Blue Bells torn out by the roots, beautiful *Proteas* and Heaths hawked at the roadside for the gratification of the travelling public. Surely our God-given and incomparable flora constitutes a national asset and its protection a national obligation. Unless it is treated as such it is doomed to certain destruction. One realises that the need to protect our wild flowers does not appeal to the general public or to Governments as does the protection of wild animals, nor would flower reserves prove as attractive to visitors. There is a glamour and sense of adventure about a visit to the Kruger Park and viewing in their native environment the lion, the buffalo, the rhino and the wealth of wild life that abounds there. These appeal far more strongly to the stranger within our gates and give the tourist something to brag about when he returns to his homeland and shows his movie film to his admiring and envious friends, relating to them in vivid language his thrilling adventures, imaginary or otherwise, with the giants of veld and forest. It also affords good business propaganda for our Publicity Societies and Tourist Agencies.

That being so, it is not difficult to understand why the Government is more willing to lend a sympathetic ear to appeals for the protection of our fauna. All the more reason why those who have the cause of our wild flowers at heart should band together and by combined effort endeavour to get the question of wild flower protection taken up as a national one. Surely we do not need to be told our duty in this respect by visitors from other lands.

Merely to preserve and protect the flowers in inaccessible mountain areas without providing facilities to get at them would soon alienate public sympathy and be of little practical interest. Even the Kruger Park would attract little interest if no one was allowed to enter it or if no facilities were provided for so doing in safety and with reasonable comfort.

#### THE MAIN FACTORS.

To summarise, the main factors affecting the destruction of our flora are:

(a) Economic: Cultivation, afforestation and indiscriminate veld-burning. Sentiment has no weight where £ s. d. is on the opposite side of the scale. To stop this is not possible.

(b) The wholesale trade in wild flowers.

The remedies suggested are:

(a) Total prohibition of all traffic in Wild Flowers, including the export of flowers, plants, bulbs, etc., overseas for purpose of trade or propaganda except under permit from a properly constituted authority or such as are expressly exempt, as for example, everlasting, chinks, etc.

(b) The proclamation of nature reserves in selected localities properly organised and providing facilities for exploitation.

(c) To encourage Local Authorities to proclaim at least a portion of their Town Lands nature reserves (this has already been done in certain cases). Local bodies able to satisfy the authorities that satisfactory action is being taken to develop and protect such reserves, should be liberally subsidised by the State.

(d) By propaganda through the medium of schools, churches and other organisations, broadcasts, etc., calculated to instil in our public, young and old, a love for our wild flowers, to make them realise that they are the trustees and guardians of this rich treasure and that it is their sacred duty to do everything in their power to preserve it for all time.



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Webber, W. F. K.  
WEBBER, W. S.  
WEBSTER, W. A.  
WEEDEN, W. F.  
Weeks, A. G.  
Weil, Major S.  
Weintraub, Miss D.  
Weir, R.  
Wellington Training College  
Wellington Girls High School.  
Wellington Public Library  
Wells, Dr. Simpson  
Wentzel, Miss H. S.  
Werdmuller, G. C. G.  
Wessels, Mrs. B.  
Wessels, Dr. D. H.  
Wessels, Rt. Hon. Sir J.  
West, J.  
West, Miss M. G.  
West, S. A.  
Westcliff School, Cape Town.  
Wetzlar, J. S.  
\*WHITE, A.  
White, C. C.  
\*WHITE, MISS F. M.  
WHITE, MISS H.  
White, Very Rev. R. L.  
White, L.  
Whitehead, Mrs. F.  
\*Whitley, H.  
Whittingdale, W.  
Wicht, J. H.  
\*Wiehl, E.  
Wiener, F. K.  
\*WILD, C. E.  
Wiley, Miss V.  
\*Williams, A. F.  
Williams, Mrs. O.  
WILLIAMS, MRS. I.  
Williams, Miss P.  
Williams, W. T.  
Williamson, Miss E.  
\*Williamson, G. E.  
Williamson, S.  
Willis, R. E.  
WILLS, LADY



|                       |                         |                       |                          |                   |
|-----------------------|-------------------------|-----------------------|--------------------------|-------------------|
| WILLS, MISS V.        | Wintour, A.             | Wood, Mrs. J. G.      | Woolf, A.                | Y.                |
| *Wilman, Miss M.      | Wintour, Mrs. A.        | Wood, Mrs. S.         | *Woolley, C. H. F.       |                   |
| Wilnot, Mrs. J.       | WIRTH, MISS L.          | Wood, Miss S.         | Worcester Municipality   | *Yedayoshi, T.    |
| Wilson, A. H.         | WITHINSHAW, MRS. E.     | Woodhead, Lt. Col. B. | Wordsworth, Mrs. A. L.   | Yeoman, W. F.     |
| Wilson, E.            | Woevodsky, Madame       | M.                    | Wostenholme, Mrs. A.     | *Young, Prof. A.  |
| Wilson, Mrs. G. H.    | Wolfaardt, P. B.        | Woodhead, Mrs. M. V.  | M.                       | Young, Mrs. J. B. |
| Wilson, H.            | Wolthuys, J. J. Verbeek | Woodin, Mrs. J.       | Wragg, Miss P.           | Young, W.         |
| Wilson, Mrs. M. M.    | Women's Agricultural    | Woodlawn Park         | Wright, Mrs. B.          | Young, Mrs. W.    |
| Wilson, Mrs. N.       | College, Boschetto.     | Cemetery              | Wroughton, F. H.         | Yudelman, J.      |
| Wilson, Miss W.       | Wood, A. H.             | Woods, D. H.          | *Wylie, Brig.-Gen. J. S. |                   |
| Windell, Mrs. B.      | Wood, Mrs. H.           | Woodyoung, Miss E.    | Wylie, Mrs. G. H.        |                   |
| Winterton, Mrs. A. W. | Wood, H. E.             | Woolf, G.             |                          |                   |

# The Botanical Society of South Africa.

ANNUAL REPORT, 1935.

In presenting this, the Twenty-second Annual Report of the Proceedings of the Society, it is with great pleasure that the Council have to record a year of steady progress.

The Membership, which last year reached the satisfactory figure of 1,594, has still steadily increased, and now stands at 1,905. Every effort will be made to reach the 2,000 mark by the time the next Annual Report is presented; and I appeal to all Members to use every endeavour to make this possible.

The primary object of the Society is to render financial aid to the National Botanic Gardens. The contribution to Kirstenbosch during the year reached the very satisfactory figure of £1,023 10s. 8d., by far the largest amount of our Annual Grant, made possible by the increase in Membership. This amount represents the nett surplus of income after deducting working expenses and cost of printing the Journal.

During the year, the Council had under consideration a proposal from the Wild Flower Protection Conference Committee that the Constitution of the Society should be enlarged to enable it to deal with matters concerning the protection of the South African Flora. At a Special Meeting of the Council called to consider this matter, the proposal failed to find the necessary support, it being felt by the majority of those present that the undertaking would become a financial burden on the Society, which would, consequently, deprive Kirstenbosch of income of which the Gardens are in such urgent need. It must, however, be borne in mind that, if at some future time it should become possible to undertake this important work of Wild Flower Protection, there seems very great need of some legislation to be brought into force which will make it an offence to sell or buy wild flowers; and until this becomes law, the devastation of the native flora will still go on.

Representation has been made to the Forest Department in respect of the planting of forest trees in areas where the natural flora abounds, and where such planting has eliminated in parts many places of beauty abounding with Proteas, Heaths, Orchids and other wild flowers. It is gratifying to record that this appeal has been received with much courtesy by the Director of Forestry, Mr. J. D. Keet, who is fully in sympathy with the objects of the Society. Nature reserves have been advocated by the Society whenever it has been possible to introduce them, and the Director of Forestry informs us that the aggregate of these special nature reserves defined and set aside in various parts of the country, in each individual case with the approval of the Minister of Agriculture and Forestry, already amounts to 5,773 acres as to 31st March, 1935, and that arrangements are being made to establish further reserves at Kambi and Tsikeni in the Transkei, at Kowyn's Pass and Woodbush in the Transvaal, and at French Hoek, Jonkers Hoek, Mitchell's Pass, Robinson Pass, Montagu Pass, Hangklip, Kluitjies Kraal, and in the Zitzikama in the Cape Province.

The Succulent Garden at Kirstenbosch, which now forms one of the principal attractions in the Gardens, has been constructed entirely from funds supplied by your Society from its Life Members' Fund. Application has been received from the Kirstenbosch Trustees for a further grant of £300 to continue this important work, and the sanction of the majority of the Council has been obtained at a meeting specially called for this purpose.

At the International Botany Congress, held in Amsterdam on 2nd September, 1935, Miss E. L. Stephens, of the Department of Botany, Cape Town University, was appointed to represent the Society.

Representation was made by the Director of the National Botanic Gardens that it was found that the distribution of

plant material (other than seeds) from the Gardens to Members of the Society was becoming a severe drain, and in addition to which it involved a great deal of time in collecting, making up and despatching the parcels. It was, accordingly, decided, with the consent of the Council, to curtail the distribution of material other than seeds, leaving it in the hands of the Director and Curator. It was further decided that, in future, the number of free packets of seeds which Associates are entitled to receive should be five.

**KAROO GARDEN, WHITEHILL.**—The financial assistance of special Membership Subscriptions to Whitehill has been of material help in maintaining this valuable outstation of the Gardens; but the support derived from Members' fees does not entirely cover the cost of maintenance, and a deficit would have been shown on the year's working but for the good services of the Cape Horticultural Society, who organised a Wild Flower Show in the City Hall during September in aid of Kirstenbosch and Whitehill. The result of this endeavour enabled the Trustees to clear up the deficiency, and sincere thanks are due to the Cape Horticultural Society for their good services. At this Show, Kirstenbosch put up a magnificent display of cut flowers, staged under the supervision of the Curator, Mr. J. W. Mathews; and Mr. Archer, the Curator of Whitehill, built a most attractive Rockery in the centre of the Hall, composed of stone from the Karoo, and planted with succulents and rock plants from the Whitehill Gardens.

**MEMBERSHIP.**—As recorded above, the Membership continues to grow, as displayed by the following figures for 1935:—

|                             |       |
|-----------------------------|-------|
| Life Members . . . . .      | 83    |
| Family Members . . . . .    | 104   |
| Ordinary Members . . . . .  | 1,035 |
| Associate Members . . . . . | 683   |
|                             | <hr/> |
|                             | 1,905 |
|                             | <hr/> |

This is an increase of 311 on the figures reported at last Annual Meeting.

**JOURNAL OF THE BOTANICAL SOCIETY.**—During the year the Twenty-first Part of the Society's Journal was published, under the editorship of Professor Compton, Director of the National Botanic Gardens. An important feature was an article expressing the official views and intentions of the Forest Department with regard to Nature

Conservation. Mr. G. W. Reynolds, of Johannesburg, an authority on Aloes, contributed a valuable illustrated article on Natural Hybrids, in which *Aloe Marlothii* is one of the parents.

Mr. J. W. Mathews summarised work and observations at Kirstenbosch with regard to lawn grasses, and also gave notes on South African Conifers for garden use. Mr. L. B. Creasey, who has recently joined the Kirstenbosch staff, contributed a very instructive article on the formation of a garden library. Mrs. Coombs, of New York, gave a charming appreciation of Kirstenbosch, where she spent many weeks in 1934. Photographs of the South African Section in the recent New York Flower Show were included, and two admirable photographs by Mr. J. P. de Smidt, showing views in Kirstenbosch, were reproduced by kind permission of the Cape Peninsula Publicity Association. The increasing interest in this publication has led to many requests from overseas, and it must be acknowledged that its publication has had an influence on the increasing Membership of the Society.

**JOURNAL OF SOUTH AFRICAN BOTANY.**—This new periodical, published from Kirstenbosch, completed its first volume (four parts) during the year. Members and Associates of the Botanical Society have the privilege of reduced rates of subscription for this Journal.

**FINANCE.**—The statement of the financial position of the Society, as displayed in the Balance Sheet, reveals a very satisfactory state of affairs. The investments, amounting to £1,615 17s., are sound. The yearly contribution available for Kirstenbosch and payable in 1936 was £1,023 10s. 8d., an increase of £209 5s. 11d. as compared with the previous year.

**MEETINGS OF COUNCIL.**—Four Meetings of the Council, as laid down in the Constitution, were held during the year under review, the majority of members attending regularly. At the Annual General Meeting held on 25th April, 1935, the following office-bearers were elected:—*President:* The Rt. Hon. Sir James Rose-Innes, P.C., K.C.M.G.; *Vice-Presidents:* Sir Lionel Phillips, Bart.; J. B. Taylor, Esq.; and P. Ross-Frame, Esq.; *As Members of Council:* Lady Phillips; W. Duncan Baxter, Esq.; Mrs. F. Bolus; F. E. Cartwright, Esq.; Professor R. H. Compton; W. A. Eaton, Esq.; Dr. Bennie Hewat; W. de N. Lucas, Esq.; F. W. Metelerkamp, Esq.; C. J. Sibbett, Esq.; H. C. Starke, Esq.; Miss E. Struben;



Mrs. H. Tevis; H. Tevis, Esq.; Miss F. M. White; Brigadier-General J. S. Wylie; Major G. B. van Zyl, M.P.

**ANNUAL GATHERING OF MEMBERS.**—The Annual "At Home" of the Society took place at Kirstenbosch on Thursday, 12th September, 1935, and was very well attended by some 420 members and their friends. The Right Hon. Sir James Rose-Innes, President of the Society, welcomed those present, and spoke of the work of the Gardens, the necessity for more members, and the importance of the work which was being carried out, which was doing so much to foster the native flora under the ideal conditions which existed in the Gardens. Refreshments were served to the guests, after which inspections were made under the guidance of members of the Gardens' Staff to the more interesting parts of the Gardens.

During the year 1935, the Gardens distributed to Members of the Botanical Society and other Institutions 722 lots of material, comprising:— 6,164 packets of seeds, 3,732 cuttings, 5,633 bulbs and 10,958 plants and seedlings.

The total number of contributions of Plant Material to Kirstenbosch during the year was 2,870 lots of material, comprising:— 476 packets of seeds, 1,158 cuttings, 5,236 bulbs, and 8,830 plants and seedlings.

The number of visitors recorded as entering the gates were as follows: Saturday afternoons, 11,867; Sundays, 36,781; Public Holidays, 12,792; being a total of

61,440, making an increase as against last year for these days of 4,928. No records are kept on other days.

The Bolus Herbarium examined 883 specimens from Kirstenbosch during the year, of which 661 were identified as known species, and 36 as new species.

The Annual Reports and Balance Sheets of the Gardens for 1934 were distributed to Members and Associates of the Society. The Kirstenbosch and Whitehill Seed Lists were also distributed as usual.

**OBITUARY.**—It is with regret that we have to record the death of Lady Meiring Beck, the Hon. Mr. Justice F. G. Gardiner, Dr. D. de V. Hugo, and His Excellency Count Labia. The Council also records with regret the death of Mr. R. L. McDonald, who has for several years gratuitously audited the books of the Society.

**THANKS.**—The Council expresses its indebtedness to Professor Compton for his very valuable assistance in having edited the Journal of the Society; to the South African Association, for the use of their Board Room for Meetings of Council; and to the Press, for their hearty co-operation in having reported the proceedings of the Society.

LIONEL PHILLIPS,

*Chairman.*

FRANK E. CARTWRIGHT,

*Hon. Secretary and Treasurer.*

## THE BOTANICAL SOCIETY OF SOUTH AFRICA.

## BALANCE SHEET as at 31st DECEMBER, 1935.

|                                  | £     | s. | d. | £     | s. | d. |                                   | £   | s. | d. | £      | s. | d. |
|----------------------------------|-------|----|----|-------|----|----|-----------------------------------|-----|----|----|--------|----|----|
| Life Members' Fund as at         |       |    |    |       |    |    | South African Milling Co., Ltd.,  |     |    |    |        |    |    |
| 31st December, 1934 . . . .      | 405   | 0  | 0  |       |    |    | Deposit on Call . . . . .         | 450 | 0  | 0  |        |    |    |
| Life Subscriptions, 1935 . . . . | 175   | 0  | 0  |       |    |    | Accrued Interest . . . . .        | 7   | 17 | 6  |        |    |    |
|                                  |       |    |    | 580   | 0  | 0  |                                   |     |    |    | 457    | 17 | 6  |
| Subscriptions paid in advance .. |       |    |    | 90    | 3  | 7  | Union of South Africa, 3¼% Stock, |     |    |    |        |    |    |
| Subscriptions to Karoo Garden,   |       |    |    |       |    |    | 1948/58 at Cost . . . . .         | 300 | 0  | 0  |        |    |    |
| Whitehill . . . . .              | 89    | 16 | 0  |       |    |    | Accrued Interest . . . . .        | 2   | 16 | 3  |        |    |    |
| Remitted to National Botanic     |       |    |    |       |    |    |                                   |     |    |    | 302    | 16 | 3  |
| Gardens . . . . .                | 80    | 0  | 0  |       |    |    | Cape of Good Hope Savings Bank,   |     |    |    |        |    |    |
|                                  |       |    |    | 9     | 16 | 0  | plus Interest Accrued ..          |     |    |    | 449    | 0  | 4  |
| Sundry Creditors —               |       |    |    |       |    |    | United Building Society —         |     |    |    |        |    |    |
| Specialty Press, Printing        |       |    |    |       |    |    | Deposit Account at 3% per         |     |    |    |        |    |    |
| Journal . . . . .                |       |    |    | 89    | 19 | 5  | annum . . . . .                   | 400 | 0  | 0  |        |    |    |
| National Botanic Gardens —       |       |    |    |       |    |    | Accrued Interest . . . . .        | 6   | 2  | 11 |        |    |    |
| Surplus for 1935 . . . . .       | 1,023 | 10 | 8  |       |    |    |                                   |     |    |    | 406    | 2  | 11 |
| Received on account Seeds ..     | 0     | 6  | 8  |       |    |    | Sundry Debtors —                  |     |    |    |        |    |    |
|                                  |       |    |    | 1,023 | 16 | 8  | For Advertisements in Journal,    |     |    |    |        |    |    |
|                                  |       |    |    |       |    |    | Part XXI . . . . .                |     |    |    | 29     | 10 | 0  |
|                                  |       |    |    |       |    |    | Cash at Bank . . . . .            |     |    |    | 148    | 8  | 8  |
|                                  |       |    |    |       |    |    |                                   |     |    |    |        |    |    |
|                                  |       |    |    |       |    |    |                                   |     |    |    | £1,793 | 15 | 8  |
|                                  |       |    |    |       |    |    |                                   |     |    |    |        |    |    |

## REVENUE AND EXPENDITURE ACCOUNT FOR 12 MONTHS ENDED 31st DECEMBER, 1935.

|                                   | £  | s. | d. | £     | s. | d. |                            | £   | s. | d. | £      | s. | d. |
|-----------------------------------|----|----|----|-------|----|----|----------------------------|-----|----|----|--------|----|----|
| General Expenses . . . . .        |    |    |    | 38    | 19 | 8  | Subscriptions—             |     |    |    |        |    |    |
| Clerical Assistance . . . . .     |    |    |    | 48    | 0  | 0  | Family . . . . .           | 197 | 11 | 0  |        |    |    |
| Bank Charges and Exchange . . . . |    |    |    | 7     | 2  | 3  | Ordinary . . . . .         | 891 | 16 | 6  |        |    |    |
| Stationery and Printing . . . . . |    |    |    | 66    | 13 | 4  | Associate . . . . .        | 141 | 13 | 0  |        |    |    |
| Expenses on A/c Special Effort    |    |    |    |       |    |    |                            |     |    |    | 1,231  | 0  | 6  |
| for Members . . . . .             |    |    |    | 42    | 15 | 8  | Sale of Journals . . . . . |     |    |    | 3      | 2  | 6  |
| Annual Gathering at Kirstenbosch  |    |    |    | 34    | 13 | 8  | Donations . . . . .        |     |    |    | 25     | 10 | 6  |
| Journal, Part XXI, 1935 . . . . . | 76 | 5  | 1  |       |    |    | Interest . . . . .         |     |    |    | 48     | 16 | 10 |
| Less Advertisements . . . . .     | 29 | 10 | 0  |       |    |    |                            |     |    |    |        |    |    |
|                                   |    |    |    | 46    | 15 | 1  |                            |     |    |    |        |    |    |
| Surplus for year 1935 . . . . .   |    |    |    | 1,023 | 10 | 8  |                            |     |    |    |        |    |    |
|                                   |    |    |    |       |    |    |                            |     |    |    |        |    |    |
|                                   |    |    |    |       |    |    |                            |     |    |    | £1,308 | 10 | 4  |
|                                   |    |    |    |       |    |    |                            |     |    |    |        |    |    |

Audited and found correct,  
R. L. McDONALD, Auditor.

Cape Town, 25th February, 1936.

(Signed) LIONEL PHILLIPS, Chairman.

(Signed) FRANK E. CARTWRIGHT, Hon. Treasurer.



# THE BOTANICAL SOCIETY OF SOUTH AFRICA.

## OBJECTS:

- (a) To encourage the inhabitants of South Africa to take an active part in the progress and development of the National Botanic Gardens at Kirstenbosch, and the Karoo Garden at Whitehill, and to induce them to appreciate their responsibilities therein.
- (b) To augment the Government grants towards developing, improving, and maintaining fully equipped botanical gardens, laboratories, experimental gardens, etc., at Kirstenbosch and Whitehill.
- (c) To organise shows at which may be displayed the results of botanical experiments or cultural skill in improving the different varieties of South African flora.
- (d) To enlighten and instruct the members on botanical subjects by means of rambles, meetings, lectures and conferences, and by the distribution of literature.

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FOUNDED JUNE 10th, 1913.

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### *President:*

W. DUNCAN BAXTER, Esq.

### *Vice-President:*

J. B. TAYLOR, Esq.

*Chairman of Council:* F. W. METELERKAMP, Esq.

*Hon. Secretary and Treasurer:* F. E. CARTWRIGHT, Esq. (P.O. Box 267, CAPE TOWN.)

### *Council:*

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A. H. Cornish Bowden, Esq.

Prof. R. H. Compton.

W. A. Eaton, Esq.

P. Ross Frames, Esq.

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Dr. H. A. Moffat.

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H. C. Starke, Esq.

Miss E. L. Stephens.

E. W. McL. Thomas, Esq.

Miss F. M. White.

### *Terms of Membership:*

*Life Members*, subscribing not less than £25.

*Family Members*, subscribing not less than £2 2s. per annum.

*Ordinary Members*, subscribing not less than £1 1s. per annum.

*Associate Members*, subscribing not less than 5s. per annum.

*Associate Members* enjoy all the privileges of Membership except that they do not vote at any of the Society's Meetings. New Associate Members are residents of the Union only.

Honorary Members may be elected at a Meeting of the Society on the nomination of the Council.

All Members have the privilege of sharing in the free distribution of surplus seeds from Kirstenbosch, on application to the Director of the Gardens. The Journal of the Botanical Society, published annually, is sent free to every Member on application. The Journal of South African Botany can be purchased by Members at reduced rates.

Life, Family, and Ordinary Members may pay an additional subscription of 10s. per annum, the proceeds of which will support the Karoo Garden, Whitehill: such Members have the further privilege of receiving seeds from Whitehill as well as from Kirstenbosch.

Those wishing to become Members of the Society are invited to communicate with Mr. F. E. CARTWRIGHT, *Hon. Secretary*, P.O. Box 267, Cape Town.



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*The Southern Life Association has been favoured with the administration  
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**FUNDS - £7,000,000.**



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| W. G. COMBRINK.                    | J. H. HABLUTZEL.                            | P. K. MASKEW.         |                    |
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### OFFICE:

**117 St. George's Street**  
**CAPE TOWN**

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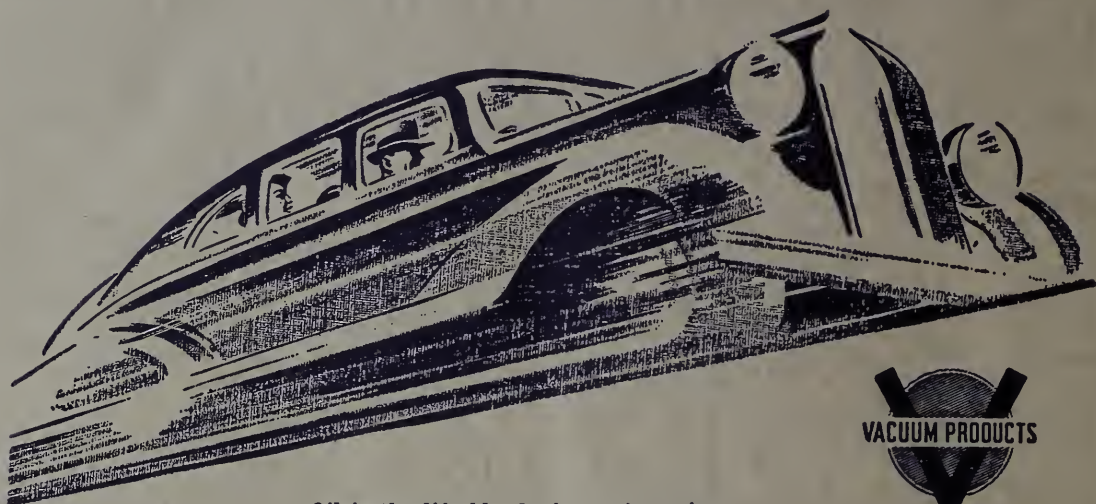
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THE JOURNAL OF THE

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OTANICAL  
SOCIETY  
OF SOUTH AFRICA

Edited by R. H. COMPTON  
M.A., F.R.S.S.Af., Director of the  
NATIONAL BOTANIC GARDENS

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Part XXIII. 1937

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KIRSTENBOSCH,  
NEWLANDS, C.P.  
SOUTH AFRICA.

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Published under the authority of the Council of the Botanical Society





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Mrs. Bolus has done her work well and faithfully. All the reward she seeks is a better appreciation of our wealth of flowers and their preservation.—*Cape Times*.

This is a book that should certainly be in the hands of every teacher of botany, biology and nature study and is well worthy of a place in the library of every nature lover.—*The Education Gazette*.

The matter of this volume has been arranged in botanical sequence, and is liberally illustrated by coloured plates and photographs, including illustrations in colour of "Stapelia" and some of its allies, "feeling," says Mrs. Bolus, "that any work dealing with our native flora would be sadly defective if some representation of so important a constituent as the succulents were not included."

Each specimen is dealt with in an exhaustive and readable manner, and the illustrations (paintings by D. Barclay and photographs by E. J. Steer) are exquisitely reproduced. The colour studies in particular enhance the publication a hundred-fold, being artistic and natural in the extreme. This book is a necessary addition to any library, and particularly to that of a lover of flowers.—*Pretoria News*.

In its text it is a worthy companion to the first book, which came out eight years ago. In its illustrations it is a finer fellow. Miss D. Barclay has contributed more of her true-to-the-veld water colourings than appear in the first volume. The photographs are again the work of Mr. E. J. Steer.

Flowers are described according to the families to which they belong, and in language stripped of obscure words. And Mrs. Bolus tells the country rambler the very things he wants to know about a flower he finds on veld or mountain — its common name, its botanical name and who first noted and named it, why it grows in some localities and not in others.

Anyone who reads it will not pick a wild flower from its natural haunt, but will feel inspired to walk miles to meet it at home.—*Cape Argus*.

This publication fills a real want especially as its predecessor, "A First Book of South African Flowers" has been out of print for some time. It is issued under the auspices of the Wild Flower Protection Society and is dedicated appropriately to the memory of Sir Lionel Phillips.

There's no need to hand out any praise here because the names of the collaborators are a warrant of quality. But the Specialty Press should be congratulated, I think, on the way they have done their part of the work, on the reproductions of the paintings and photographs, and the delightful general get-up.—*Broadcast Review*.

THE SPECIALTY PRESS OF S.A. LTD., BOX 21, WYNBERG





*Photo : Royal Horticultural Society.*

PLATE I. THE SOUTH AFRICAN EXHIBIT, CHELSEA SHOW 1937.



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# The Journal of the Botanical Society of South Africa.

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EDITED BY R. H. COMPTON.

PART XXIII

1937

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# News and Notes.

FOR many years we have published a table, brought up to date annually, showing the membership of the Botanical Society, and we do so again hereunder.

|      | Life. | Family. | Ordinary. | Associate. | Total. |
|------|-------|---------|-----------|------------|--------|
| 1914 | 33    | 22      | 264       | 33         | 352    |
| 1916 | 49    | 26      | 264       | 45         | 384    |
| 1918 | 49    | 28      | 281       | 78         | 436    |
| 1920 | 54    | 45      | 384       | 237        | 720    |
| 1922 | 55    | 52      | 418       | 301        | 826    |
| 1924 | 62    | 57      | 455       | 313        | 887    |
| 1926 | 65    | 60      | 481       | 341        | 947    |
| 1928 | 66    | 54      | 581       | 345        | 1046   |
| 1930 | 71    | 76      | 718       | 414        | 1279   |
| 1932 | 72    | 79      | 746       | 446        | 1343   |
| 1934 | 77    | 93      | 889       | 535        | 1594   |
| 1935 | 83    | 104     | 1035      | 683        | 1905   |
| 1936 | 83    | 108     | 1042      | 683        | 1916   |
| 1937 | 85    | 104     | 1046      | 693        | 1928   |

Since the rapid rise in numbers in 1935 the membership roll has remained relatively steady at just under the 2,000 mark. It is now time to make a further advance and to celebrate thereby an important event in the history of the Society and of Kirstenbosch — their twenty-fifth anniversary.

The Botanical Society was founded on June 10th, 1913, so that its twenty-fifth anniversary will take place in 1938 (The Council of the Society has recently held its hundredth meeting.) In order to mark the silver jubilee of the Society and of the establishment of Kirstenbosch, special celebrations will take place, and a sub-committee of the Council is engaged in drawing up a programme. In the meantime we should like to say that the most acceptable birthday present which a Member can make to the Society is to secure the enrolment of another Member. The membership roll now stands at just under 2,000. If every Member could obtain one or more new Members the membership would rise to 4,000 and a tremendous stimulus and help would be given to the Gardens at the beginning of their second quarter-century. The beginning of the year is the best time to obtain new members, and there are many people who only require the matter to be brought to their notice by a friend and would gladly join the Society and so support the Gardens. A form of application is enclosed in this Journal. May we urge each

Member, on reading this paragraph, to take up the suggestion and secure a friend as a participant, through membership of the Botanical Society, in the unique work of our National Gardens, Kirstenbosch and Whitehill.

\* \* \* \* \*

We record with regret the death of four Life Members of the Botanical Society, who also gave other valued support to the National Botanic Gardens.

Mr. E. R. Syfret, one of the best known figures in the financial life of Cape Town, was a Life Member of the Society from the beginning, and for several years served as a member of the Council.

Mr. Percy A. Molteno became a Life Member of the Botanical Society in 1920. He was keenly interested in the beauty of the Cape flora, both that of individual species and in its aspect as the natural vegetation of the mountains, and was eager for its preservation. On his last visit to South Africa, although at an advanced age, he made vigorous efforts for the adequate protection of the rare and lovely Silver Mimetes in its natural surroundings, and succeeded in getting action taken in the matter.

Miss F. Margaret White joined the Society at its inception, and was at once chosen as a member of its Council; when the constitution was changed in 1917 she became a member of the executive body thenceforward called the Council: she remained a member of the Council and an active participant in its work until her death. She was a very regular visitor to Kirstenbosch and took a keen interest in the cultivated and wild portions of the estate. Her article on "Some View Points at Kirstenbosch" published in this Journal in 1918 was an eloquent expression of this. In 1926 she contributed an interesting article entitled "What's in a Name? A few Thoughts on the Scientific Names of South African Plants."

Sir Hugh Levick joined the Botanical Society as a Life Member in 1924. He took a special interest in supporting the work of the Karoo Garden at Whitehill, to which he made the anonymous donation of £100 annually for the seven years 1924 to 1930 inclusive, thus helping very materially towards the establishment of the Garden in the days before the Botanical Society gave it financial assistance.

\* \* \* \* \*

The fundamental part taken by the late Sir Lionel Phillips in the establishment of the National Botanic

Gardens and of the Botanical Society, and his constant and valuable services to the Gardens as a member of the Board of Trustees and as Vice-President and Chairman of the Council of the Botanical Society, are to be commemorated by the erection of a bell tower at the new Main Gates of Kirstenbosch. The tower will be a column of rough mountain stone masonry and will form the southernmost pier of the new gates. Mr. R. Gwelo Goodman, the well-known artist, is responsible for the design. The bell is one which for many years hung in the grounds of Vergelegen, and this together with the cost of the tower is the gift of Lady Phillips. The bell will be rung regularly for time keeping purposes, and will also be of value in cases of emergency such as bush fires.

\* \* \* \* \*

In the last part of this *Journal* some of the new developments at Kirstenbosch were outlined, and these are now taking shape. The new Main Entrance drive has been constructed, and is now consolidating before receiving its surface material and being divided into a roadway and footpaths. Work is now proceeding on the new Entrance Gates, which should be completed by the end of March. The old main entrance, which had served the Gardens less and less adequately as time went on, has now been closed to vehicles: some may regret this, but none can be indifferent to the serious danger to motorists and pedestrians which its retention as a vehicular entrance would have involved.

\* \* \* \* \*

The triangular area of six acres lying between the old and the new main entrances and fronting the public road is now undergoing development as part of the cultivated grounds. The southernmost portion has been laid out informally with beds of showy *Watsonias* separated by broad grass paths. The larger portion — once the orchard and kitchen garden of the old homestead — is being trenched throughout, and its infestation with poplars and brambles removed: it will be traversed by two footpaths and will be mainly a grass sward with irregular planting, more or less on the lines of the present Lawn. Special attention will be given to the cultivation of bulbs, rocky outcrops will be preserved and used, and the whole area will be bordered with indigenous flowering shrubs and trees. Mr. J. B. Taylor's donation of £500, mentioned in the last part of this *Journal* is being used with his consent in the work of construction and preparation of this important area.

\* \* \* \* \*

In the past, owing to absence of capital funds, Kirstenbosch has been extremely ill-equipped for its work in the

matter of buildings. Conditions in this respect until recently have handicapped the efforts of the staff, caused irritation and loss, and retarded necessary development. During the last two years, however, the Gardens have been allotted funds by Government for new buildings, which are being carried out through the Public Works Department, and some of the more urgently necessary pieces of work have been executed or are in progress. A cottage adjoining the new Main Entrance, and occupied by the Assistant Curator, has been built, and a garage is being added to it: a new work-shed is being erected on the old picnic site between the Lawn and the parking area: new Entrance Gates are being built: bathrooms are being added to the two workmen's cottages at present without them.

\* \* \* \* \*

Other pieces of work which have been authorised and for which the plans are in an advanced stage will be of considerable value. A Cottage Hostel is to be built to accommodate unmarried European gardeners, who are now very unsatisfactorily housed in cottages originally built for coloured labourers and badly needing repairs. The complete scheme for this Hostel comprises three blocks. The two smaller blocks are intended for eventual inclusion in the Hostel arrangements, but in the meantime will serve as accommodation for married employees. The erection of the largest block will take place first. The site chosen for this Cottage Hostel is in the angle of Rhodes Road and the road through Protea Village and adjoins Protea Church.

\* \* \* \* \*

Another building which has been sanctioned as a major work is a Lecture Room, which is to be built on a site adjoining the Tea House. It will consist of a thatched and pillared stoep similar to that of the Tea House and in alignment therewith, and behind the stoep will be a room capable of seating about 200 people. This will be equipped with projection screen and blackboard, lecture table, benches for experimental work, aquarium tanks, sinks and show cases, with wall space for diagrams and pictures. Two private rooms will be provided for the nature study teachers, and there will be cloakroom and lavatory accommodation. The equipment is being supplied by the Provincial Department of Education. The Lecture Room will mainly be used in conjunction with the school classes in nature study, and it is hoped that in view of the new facilities this important work may increase and that the potentialities of Kirstenbosch as an educational institution may be more fully realised. In addition to this the Lecture Room will be used for demonstrations and lectures



to members of the Botanical Society and to the general public.

\* \* \* \* \*

In addition to the above items of development a laboratory has been added to the Gardens Offices, and a new seed-store, tool-store, women's cloak-room and improved sanitation have been provided in the Nursery. Two shade-houses and a new drying shed have also been built in the Nursery, the wooden bridge in the Dell has been replaced by a stone one, and a new water intake and reservoir have been built. This work has all been financed from Garden funds.

\* \* \* \* \*

The Trustees also contemplate, granted that the necessary funds are supplied by Government, the addition of living accommodation and a public room at the Tea House, a more adequate sanitary block for the public, new stables, two glass-houses and several other improvements. When this programme is completed it may be considered that the deficiencies in the working background of the Gardens will have been remedied. Nothing has been said about the scientific functions of the Gardens, but this essential matter is also receiving attention, and the coming year or two may witness development in this respect also.

\* \* \* \* \*

At the suggestion of Mr. J. B. Taylor the Botanical Society is issuing a hanging show-card to call the attention of the public to the desirability of supporting the Gardens by joining the Society. The card carries a view of Kirstenbosch from a photograph by Mr. J. P. de Smidt, coloured by Mr. Twine, and a few lines of text. It is being distributed in part through the kindness of Barclay's Bank (Dominion, Colonial and Overseas), the Standard Bank and the Cape Peninsula Publicity Association. The cost of production is met by special subscriptions by Mr. J. B. Taylor and Sir Abe Bailey, to whom the Society is greatly indebted.

\* \* \* \* \*

The Trustees of the National Botanic Gardens have recently decided to establish the post of Assistant Curator at Kirstenbosch, and Mr. A. J. M. Middlemost, who has been a member of the gardening staff since 1922, has been appointed.

\* \* \* \* \*

The Edward Muspratt Solly Scholarship for 1938, tenable at Kirstenbosch, has been awarded to Miss Ethel Cohen, B.Sc., of the University of the Witwatersrand. Miss

Cohen will undertake research work in systematic botany during her tenure of the Scholarship.

\* \* \* \* \*

Congratulations are offered to Miss G. J. Lewis, B.A. (Cape Town), on her appointment to the Assistantship in charge of the Botanical Department of the South African Museum, vacant through the resignation of Miss S. Garabedian. Miss Lewis was Edward Muspratt Solly Scholar at Kirstenbosch in 1932 and 1933, and has recently been assistant in the Bolus Herbarium and part time demonstrator in Botany in the University of Cape Town. Members of the Botanical Society are indebted to her for an illustrated article on *Ixia* published in this Journal in 1931.

\* \* \* \* \*

The Council of the Botanical Society made strong representations to the Cape School Board in favour of the appointment of a second teacher of Nature Study to be stationed at Kirstenbosch. The work which had fallen on the willing shoulders of Miss Johns has been very heavy, and the classes visiting the Gardens have often been too large for convenient handling. Moreover the number of times during the year on which an individual child comes to Kirstenbosch has only been four at most, and it is most desirable that this should be increased, if necessary at the expense of the indoor subjects in the school curricula. It is satisfactory to record that the Department of Education has approved of a second teaching post being created, and that they have appointed Miss Maria Thesen, B.Sc., of the University of Cape Town, who will begin work in January, 1938.

\* \* \* \* \*

Mr. Svend G. Fiedler of Rosehill, Claygate, Surrey, England, is an enthusiastic grower of alpine and of South African succulents and other plants. His methods of germinating seeds have been so successful that we can study them with profit, and he has kindly contributed an article to this Journal in which he embodies his experience and advice. The photographs he includes in the article speak for themselves; and by his permission a summary of his results with Kirstenbosch and Whitehill seeds is appended, this reflecting credit both on the quality of the seeds sent out to Members of the Botanical Society and on Mr. Fiedler's skill and methods.

\* \* \* \* \*

Of all the contributions that the South African flora has made to the gardens of the world none is more remarkable than the genus *Gladiolus*. The native species are of conspicuous grace and charm, and they have been eagerly used by horticulturists in Europe and America,

who, by hybridisation and selection, have produced an amazing number of lovely plants, valuable both for their garden effect and for indoor decoration. Mr. L. B. Creasey, until recently a member of the Kirstenbosch gardening staff, and now at Cape Town Public Gardens, has contributed an article summarising the horticultural history of the garden "Glads": and Miss W. F. Barker, Botanical Assistant at Kirstenbosch, has illustrated it with a very interesting set of drawings of the principal indigenous species which the hybridists have used.

\* \* \* \* \*

Mr. F. W. Thorns, Curator of Kirstenbosch, has written a short account of some of the plants of economic importance which have been grown in the Gardens, and gives advice and suggestions with regard to methods of propagation and cultivation. This article is being reprinted separately and copies will be used to answer the enquiries which are frequently received at the Gardens on these subjects. We may also refer Members to an article on the Kirstenbosch work on economic plants published in this Journal, Part XIX, 1933.

\* \* \* \* \*

Miss Mia C. Karsten, who is editor of one of the foremost gardening periodicals in Holland, and who spent several months in South Africa a few years ago, has brought to light some interesting letters written from the Cape in 1816. The author of these documents was Caspar Georg Carl Reinwardt, an enthusiastic naturalist, whose name is commemorated in *Haworthia Reinwardtii*, a beautiful native succulent, and in the Indian genus *Reinwardtia*. The letters have a curious interest for those who live at the Cape to-day and especially for those who botanise here, and members of the Botanical Society will be grateful to Miss Karsten for making them available. Miss Karsten has unearthed certain letters of Carl Peter Thunberg also, which the Editor hopes to have the privilege of publishing later.

\* \* \* \* \*

The Seed List annually issued from Kirstenbosch and Whitehill is circulated to Members with the Journal, and shows what seeds are available for them on request, according to the terms of their membership. Requests have been made for the inclusion in the seed-list of details of height, colour, season, etc., of the various species. This is not the usual practice of botanic gardens, but in any case the need will be supplied by the brochure on the cultivation of South African plants, written by Mr. J. W. Mathews, formerly Curator of Kirstenbosch, and based on Kirsten-

bosch experience, which is about to be published. This book will be distributed gratis to Members of the Botanical Society during 1938, and will be a valuable addition to their privileges.

\* \* \* \* \*

Members are again asked to note that it is impossible for the Gardens to undertake to send out plants or bulbs, and it is hoped that they will confine their requests to seeds. They are also asked to send in their list of desiderata by letter as soon as possible after receipt of the Seed List. The making up and despatch of parcels occupies much time on the part of the Gardens' staff, and it is an advantage to have this work condensed into a few weeks rather than spread throughout the year. Moreover, early applicants are the most likely to obtain the seeds they want before supplies are exhausted.

\* \* \* \* \*

The Coronation Year was celebrated by the Royal Horticultural Society by the inclusion in their annual Chelsea Show of a special tent displaying the indigenous plants of the various dominions and colonies of the British Commonwealth of Nations. Each of these had its own garden, and South Africa had pride of place in the centre of the tent. The National Botanic Gardens were requested by the Union Government to be responsible for the South African exhibit. Seeds of showy herbaceous plants were sent to an English firm for raising for this purpose. Other growers of South African plants in England contributed specimens, and so did the Royal Botanic Gardens, Kew. A large number of succulents were sent from the Karoo Garden, Whitehill, and two collecting expeditions went from Kirstenbosch and Whitehill to Van Rhynsdorp and Namaqualand and to the Little Karoo respectively. The naming and packing was done at Kirstenbosch. The contributions from South Africa were shipped free by the kindness of the Union Castle Co., and arrived in excellent condition. The rockwork was built by Kew, stone being chosen to resemble the Karoo formations, and Kew was also responsible for the planting and labelling at Chelsea. The result was a most interesting exhibit, comprising about 300 species of South African plants. The exhibit was visited by Their Majesties the King and Queen, who made it their first objective, and who expressed deep interest in it. The Royal Horticultural Society has presented the Gardens with a volume of photographs as a souvenir of the Exhibit, and one of these is reproduced as Plate I.

\* \* \* \* \*

The Cape Provincial Council has passed a new Ordinance (No. 15 of 1937) for the protection of Wild Flowers. In framing this legislation the Administrator's

Department consulted the Committee which was set up by the Wild Flower Conference in 1935, and adopted some of its recommendations. The new Ordinance is much more stringent than its predecessors, and in particular it will make the sale of wild flowers (always the chief cause of their destruction) more difficult. A novel and far-reaching provision is that which makes it illegal to hawk or peddle wild flowers, and confines their sale to specially appointed stands. If properly enforced — and from the technical point of view this should give no difficulties to the police — this new provision should effectively stop roadside sales and the surreptitious peddling of protected flowers to private houses and hotels: and it will make it much easier for the police to detect breaches of the law if sales are confined to a few definite sites. It is clear, of course, that everything will depend on police and magisterial enforcement: this should now present far fewer loopholes than has been the case in the past. The Ordinance comes into force on 1st January, 1938. We hope that early action will be taken to show that it will be firmly administered.

\* \* \* \* \*

Members of the Botanical Society have the privilege of being able to subscribe at a reduced price to the *Journal of South African Botany*, a scientific quarterly published at Kirstenbosch under the authority of the Trustees of the National Botanic Gardens. This periodical has just

completed its third annual volume, in which it has published many valuable and interesting papers on South African botanical subjects. The most extensive of these was an account of a karoo-like area near Bloemfontein, by Professor G. Potts and Mr. C. E. Tidmarsh. Mr. G. W. Reynolds has continued his studies of the genus *Aloe* which are noteworthy for their field observations and critical care. Professor F. E. Lloyd wrote on the germination of the insectivorous bladderworts. Mrs. Levyns revised the genus *Stoebe* to which the "slangbos" belongs, and also wrote on *Carpacoce*. Mrs. Isaac described a unique single-leaved *Haemanthus*. Captain Salter described several new species of *Oxalis*, and Miss Barker a remarkable new *Haworthia*. Captain Salter also gave critical notes on the Cape Peninsula *Rubiaceae*, and Professor Adamson on the South African species of *Juncus*. The *Journal of South African Botany* is remarkable among botanical periodicals for its lavish use of illustrations: Volume III contains no less than 27 photographic plates, and in addition there are large numbers of diagrams and line drawings. The first quarterly part of volume IV (1938) has just been published. Subscriptions (for members of the Botanical Society) are 15/- for the complete volume, or 5/- per part, post free: these prices representing a saving of approximately twenty-five per cent on the prices to the general public. Back volumes and numbers are also available at the same prices.





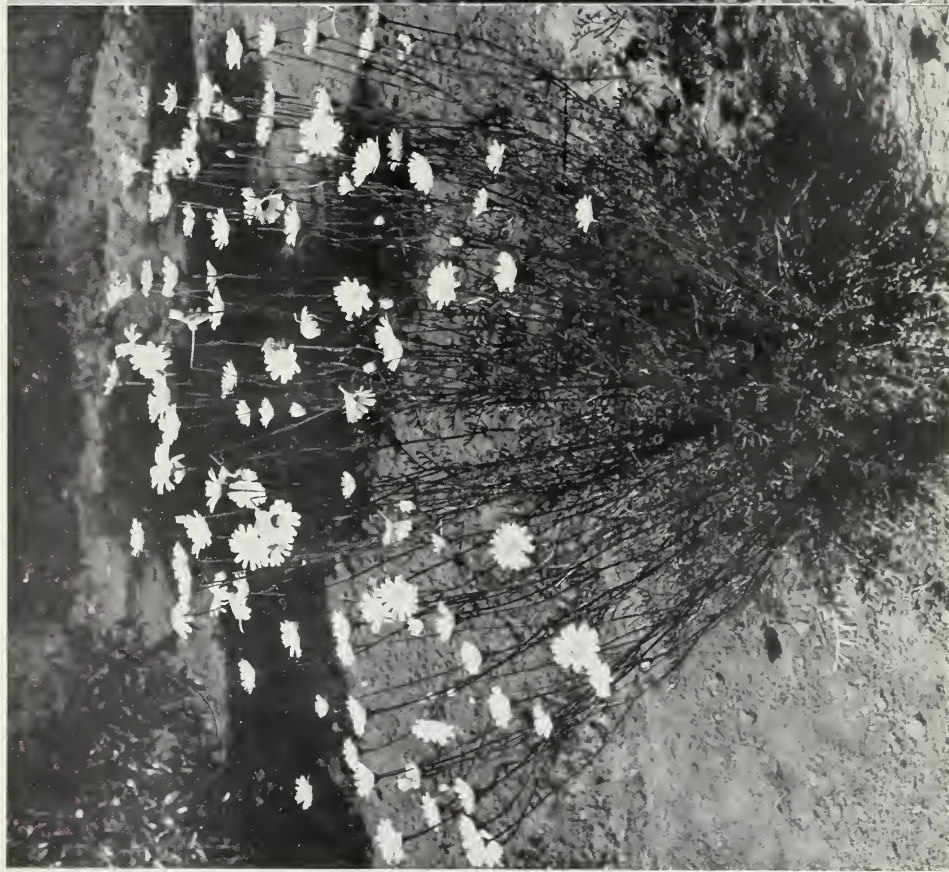


PLATE II. ECONOMIC PLANTS AT KIRSTENBOSCH.

1. *Chrysanthemum cinerariaefolium*  
(*Dalmatian Insect Powder*.)

2. *Rhus Coriaria*  
(*Sumach*.)

*Photo: Cape Times*

# Economic Plants at Kirstenbosch.

By F. W. THORNS.

THE introduction and cultivation of economic plants and the scientific examination of their products has always been one of the activities of the National Botanic Gardens, and in connection with this work a collection of plants of known or reputed economic value is maintained from year to year. At present the collection comprises some two hundred species and varieties of plants. Trees; shrubs; perennials; and annuals, representative of plants providing fibres; oils; cattle fodders; aromatic and medicinal products. Facilities do not allow for all these to be grown on an extensive scale, and in the main they are perpetuated in small quantities which are useful to students and others for examination, and can provide stock for distribution or future experiments.

At the same time it has been possible to grow some of these plants in sufficient quantities to obtain information as to their adaptability to our climate, the best methods of cultivation, and the yield of the commercial product. To further this end the crops have been grown as far as possible under "field" conditions, with no coddling, and with the possible exception of mint, with no artificial watering.

The largest field experiment has been with "Buchu" (*Barosma betulina* and *B. crenulata*). A comprehensive article on the "Cultivation of Buchu" by R. H. Compton and J. W. Mathews appeared in the Journal of the Department of Agriculture of March, 1921, and there is no need to cover this ground again, although in passing it may be of interest to note that the plantations then under notice are still in existence, and produce a crop annually, although gaps are appearing here and there in the rows through the death of some of the plants.

More recent experiments have been with the cultivation of Mints (for the production of Mint Oils): Lavender (Lavender Oil): *Chrysanthemum cinerariaefolium* (Insect Powder): and Sumach (Tanning Material). Judging from a number of enquiries received, there is a demand for information regarding the cultivation of these plants, which the following notes may help to supply.

## MINTS.

Several species and varieties of *Mentha* have been and are being grown in order to test the practicability of producing marketable mint oils in this country. A brief description of some of them follows.

### *Black Peppermint (Mentha piperita var.)*

This is a European mint and is probably grown the world over. It is easily distinguished by its dark purplish stems and petioles, very dark green leaves, and pleasant odour. This variety is extensively grown in the United States of America for the production of peppermint oil for which there is a demand as a flavouring agent in confectionery and toothpastes. The plant succeeds under trial conditions at Kirstenbosch and has produced a good yield of oil.

### *Spearmint (Mentha viridis)*

Indigenous to Europe, parts of Africa, and possibly other quarters of the globe, this mint is cultivated in the U.S.A. for Spearmint oil, used in flavouring chewing gum. The leaves are longer and more pointed than the peppermint, of a light green colour, and with a less pleasant odour. Its cultivation at Kirstenbosch has presented no difficulties.

### *Japanese Mint (Mentha arvensis var. piperascens)*

This variety has dark, reddish stems; bright green broadish leaves, and differs from other mints by bearing its flowers in the axils of the leaves instead of on terminal spikes. It is cultivated in the U.S.A. and Japan for its oil, from which menthol is obtained. It has proved to be less resistant to summer droughts than other types of mint grown here, but has provided an exceptionally good yield of oil.

### *Mentha sylvestris.*

Another species obtained from Japan that has given good results. It is an erect plant with soft, greyish green, tomentose leaves, rather broader than in most mints, with dark coloured stems and pleasant odour.

*Mentha longifolia* and its variety *polyadena* are two indigenous mints from the Transvaal that show particular promise in being drought resisting and early maturing. The main difference in these two is in colouring, the former being green throughout and the latter having reddish stems. Both have light green lanceolate leaves and an erect habit.

Up to a point the experimental cultivation of mint has been successful, but there are indications that better results might be obtained under summer rainfall conditions. The plots at Kirstenbosch are on low-lying alluvial soil, which



tends to dry out considerably in the summer. To obtain a good yield of fine quality oil the crop must be harvested for distillation when coming into flower, and as flowers are produced in February, it is usual for the plants to suffer damage from drought before flowering time. Excessively dry conditions cause wilting and loss of the lower leaves, with a consequent reduction in oil content. Artificial watering could be resorted to, but it is not likely that the crop would pay under irrigation, and so our experiments have been confined to dry land, with the exception of a trial planting on swampy ground, which was a failure. Although no direct evidence is available, there are reasons for believing that mints in general would grow better under soil conditions less acid than those prevailing here.

The methods of cultivation employed have been the same for all varieties of mint. Beds six feet wide have been filled by planting the running root-stocks in shallow drills made crosswise the beds with a distance of one foot between the rows. This is rather close for good results, as doubtless the ill-effects of drought are aggravated by the resultant overcrowding of the plants. For commercial culture it is recommended that a distance of two or even three feet be left between the rows which will allow for mechanical cultivation to be employed for one or two years. At Kirstenbosch a light dressing of farmyard manure was applied when the beds were prepared.

Annual replanting has been done following the cutting of the crop, but this should not be necessary or desirable under commercial conditions. Apparently in U.S.A. some plantations have produced crops for as many as seven years, but three or four years is the general life of a plantation, the ingress of perennial weeds usually making clearing and replanting necessary after this period.

No diseases or insect pests of mints have appeared at Kirstenbosch.

#### LAVENDER (*Lavandula vera*).

A lavender plantation at Kirstenbosch has produced good crops of flowers annually for the past eight years. During this period no fertilisers have been given and there does not appear to have been any noticeable depreciation in the quantity or quality of the crop. Gaps have appeared in the rows, but these are most noticeable at the driest end of the beds which points to drought as being the cause of death. Young plants have been used to fill blanks at various times, and it is obvious that a proportion of the original plants have been replaced in this manner, but the great majority remain. The soil is poorish hillside loam, and no water is supplied.

Propagation is effected by cuttings or "slips" about two to three inches long inserted in sandy beds in the open in July or August. The cuttings are spaced three inches apart in rows six inches apart and practically all are successfully rooted, being ready to plant out the following winter. Flowers are borne the first season, and the crop increases each year for the first four or five years.

November is the month of flowering, and for distillation or for preparation of sachets the flowers must be cut when half open. Lavender oil distilled at Kirstenbosch received a favourable report when submitted for examination overseas.

There are several varieties of *Lavandula vera* in cultivation and although the Kirstenbosch stock was raised from seeds supplied from Kew as the best commercial strain, there is a very slight variation among the plants. Whether this is due to a few hybrids or variants having appeared in the original batch, or to later sporting is unknown, but a few undesirable types have appeared. Plants of the good type are dwarf and compact with small leaves and numerous short, dense spikes of flowers on unbranched leafless stems about six to nine inches in length. The occasional plants of poorer type tend to grow taller and produce larger leaves, to bear elongated and rather lax flower heads with a tendency to branch, and have the characteristic lavender scent less strongly developed. Being the largest plants in the rows, these undesirable plants are prominent when cuttings are collected and are thus perpetuated. To preserve a good strain it has been found necessary to rogue the plantations, and to introduce a system whereby all cuttings will be taken from a specially selected group of plants of proved value.

Lavender plants have been grown spaced one foot apart each way, with a service path four feet wide after each five rows. Under these conditions the plants completely cover the ground in the beds, thus keeping down weeds, but it is probable that on good soil a slightly wider spacing would be advantageous.

No pests or diseases have been observed on Lavender at Kirstenbosch.

#### DALMATIAN INSECT POWDER (*Chrysanthemum cinerariaefolium*).

Originating in Dalmatia, this plant is widely grown in Central Europe and Japan. The half-opened flowers are collected, dried and ground to powder, and form the basis of some commercial powder insecticides. It is a perennial, herbaceous composite, having greyish-green, deeply lacinate leaves, and with white single flowers borne on stems about two feet in height.

Propagation is effected by seeds or by division of old clumps. The former method is the slower, as under general

conditions the plants would not produce a crop of flowers until the second season after planting, but the resultant crops should be heavier and the plantation should bear longer than if established by division, although the latter method would produce a crop the first season after planting.

At Kirstenbosch this crop is grown on poor hillside soil, under very dry summer conditions. The plants are spaced one foot apart each way, but a distance of about two feet between the rows is recommended for general culture. Apart from a light dressing of farmyard manure when originally planted no fertilisers have been given, and good crops of flowers have been produced annually for four years from the same beds. The plants flower in November, and remain practically dormant during the hot dry summer. New plantations established by division in July have flowered freely the following November.

To establish the crop from seeds it would be necessary to sow in prepared and sheltered seed beds, and to plant out when large enough. In Winter rainfall areas sowing can be done in April or May, in order to have seedlings for planting out in July, but in up-country districts it would be advisable to sow in Spring and plant out in time for the plants to become established before the Winter. Poorish sandy soil would appear to be quite suitable for the crop, and heavy fertilising is undesirable as it would increase the growth of leaves at the expense of flowers.

Reports from some other countries show that *Chrysanthemum cinerariaefolium* is sometimes attacked by a soil-borne disease, but no diseases or pests of this plant have been observed here.

#### SUMACH (*Rhus Coriaria*).

This *Rhus* is a deciduous small tree with pinnate leaves, indigenous to Mediterranean regions. The Sumach of commerce as used in tanning consists of the leaves, dried and ground into powder.

Trials at Kirstenbosch show that Sumach can be grown without difficulty in this country. One plantation on the dry hillside site was planted some years ago, but owing to the exceptional poorness of the soil, growth has been slow, and the dry summers cause a certain amount of shedding of lower leaves which reduces the amount available for gathering. The best results were obtained by planting in deep, alluvial, sandy soil and pruning back to about a foot from the ground (leaving two buds) each year, this treatment resulting in annual growths upwards of six feet in height with a maximum of leaves that could be easily gathered.

Gathering is done by hand, the leaves, including the rachis, being stripped from the plants and spread in the

sun to dry. Sun drying is essential, as the green colour of shade dried material spoils the fine leathers for which Sumach is used. When thoroughly dried and bleached the leaves are ready for grinding.

Autumn is the season for gathering the leaves, the correct stage being when the lower leaves are beginning to assume a reddish tint.

Reports show that the milled products from Kirstenbosch material compares favourably with Sicilian Sumach in tannin contents.

When coppiced as described above, the plants sucker freely and can be increased by this means, and about four or five feet of space should be allowed each plant. To obtain a good yield of leaves in the Winter rainfall area it would be necessary to plant on soil that is capable of retaining moisture in Summer, but in regions of Summer rain the plants should not be difficult, provided that rainfall is not too light. It has been observed that Australian Bug and Mealy Bug have a liking for the old stems of Sumach, necessitating a winter spray, and this Spring a small green leaf-eating beetle appeared in numbers on the leaves, but was easily controlled with lead arsenate.

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The general conditions under which the trial plantings have been made are as follows:—

The hillside land referred to consists of about one and a half to two feet depth of reddish loamy soil over gravelly clay. When dry it is powdery, but sticky after rain, and inclined to cake on drying. During the Summer it is usually very dry. The land slopes gently to the North and is mostly rather poor and deficient in lime.

The sandy alluvial soil mentioned is very deep, of a blackish colour when wet, but showing a large proportion of white sand when dry. It becomes fairly dry during the Summer but is generally more moist than the hillside land. Like the former it is poor and deficient in lime.

The altitude is about three hundred feet, and the average rainfall about fifty-two inches, most of which falls between May and September.

From general observations it would appear that Lavender and Dalmatian Insect Powder plants could be grown commercially in the Winter rainfall area of the Western Province, and probably also in regions of good Summer rainfall. Sumach should be successful under special conditions in Winter rains, but might prove a better proposition with good Summer rains. Mint culture is probably better suited to Summer rainfall conditions, unless artificial watering can be done.



# Garden Gladioli — Their Origin and History.

By L. B. CREASEY.

IN her flora, South Africa has paid a worthy contribution to the gardens of the world and, among our indigenous plants brought to horticultural perfection by hybridists, the *Gladiolus* stands supreme. Yet, of the 150 species at present known to exist in the Union and Rhodesia, a bare two dozen have formed the matrix to be moulded by busy hands, and of these only seven or eight have taken a really prominent part in producing the modern *Gladiolus*.

It is of interest to note that, while many of the earliest crosses were between species from the winter-rainfall area of the Western Cape, the greatest subsequent advances in *Gladiolus* breeding have been promoted by the use of summer-rainfall species from the Eastern Province, Natal, the Transvaal and Rhodesia.

Although *Gladiolus* hybridising and improvement has been carried out principally by people engaged in commercial horticulture, the first work of which we have data was done by a private individual who had no financial interest in the results.

Dean William Herbert raised a large number of hybrid Gladioli during the forty years prior to his death in 1847.<sup>1</sup> Much of his crossing was centred around Western Cape species and none of his hybrids are in cultivation to-day. It is assumed that they died and were never used in any parallel or later work, even though Herbert's hybridising was both in advance of and contemporary with that of other people. To support this view, it is argued that varieties of Gladioli now grown do not show the characters of many Cape species which Herbert employed. But we must not be dogmatic. When species of a genus have been hybridised and the progeny interbred for 130 years, all the modern varieties cannot be expected to display blatantly the characteristics of their respective ancestors.

We will now pass to the more clearly defined and consecutive lines of development.

**Colvillei.** The credit for raising the first hybrid of lasting merit must go to Colville, a nurseryman of Chelsea, London, who produced *G. Colvillei* in 1823. Dwarf and early-flowering, this had spreading, oblong-acute segments, scarlet in colour, with yellow lanceolate blotches on the

three lower segments. It was described and figured from living specimens by R. Sweet in the "British Flower Garden" t. 155 (1826). Although Herbert considered it to be (like his own *G. spofforthianus*) a cross between *G. cardinalis* and *G. blandus*, it is much more likely to have been, as Sweet claimed, *G. tristis* var. *concolor* pollinated by *G. cardinalis*. From the seed-parent the hybrid gained its fragrance, while the Waterfall *Gladiolus* contributed its bright colour.

There have been various slightly differing descriptions of *G. Colvillei*. These are generally attributed to the fact that, from 1860 onwards, the plant "threw" several sports or variations. The first white form (var. *albus*) arose as a sport in two Dutch nurseries in 1872. They had coloured anthers, and their popularity declined when a pure white form with white anthers appeared. This was called "The Bride", and it is to-day still held in high esteem in Europe and America as a subject for forcing under glass. But confusion exists. The "Index Londinensis" gives 1885 as the first publication of var. *albus* — a peculiar lapse of 13 years — while no mention is made of "The Bride". Other books erroneously quote the two as synonymous.

*Gladiolus Colvillei*, forerunner of the early-flowering hybrids, was followed by two more which had a definite bearing upon future development in this direction — *G. ramosus* and *G. insignis* — both of which were chance hybrids.

**Ramosus.** *Gladiolus ramosus*? occurred on the bulb-nursery of G. Voorhelm Schneevooft, at Haarlem, in 1830. It was originally light vermilion, with plum-coloured blotches and white stripes on the lower segments, but soon a number of varieties appeared. *G. blandus* and *G. cardinalis* have been suggested as the parents, but the hybrid was found amongst a batch of seedling *G. "floribundus"*. There are indications that the plant then grown in Holland as *G. floribundus* was in reality *G. oppositiflorus* — a tall-growing, white, streaked lilac species from the Transkei, named by Herbert in 1842. Therefore many believe *Gladiolus ramosus* to be a natural

<sup>1</sup>See Herbert's "Amaryllidaceae", pp. 344, 365, 366, and 411. Also "Trans. Hort. Soc. (London)" and "Flora Capensis".

<sup>2</sup>This must not be confused with the species *G. ramosus*, of Linnaeus ("Species Plantarum", 1753), and later named *Melasmaeraula graminea*.



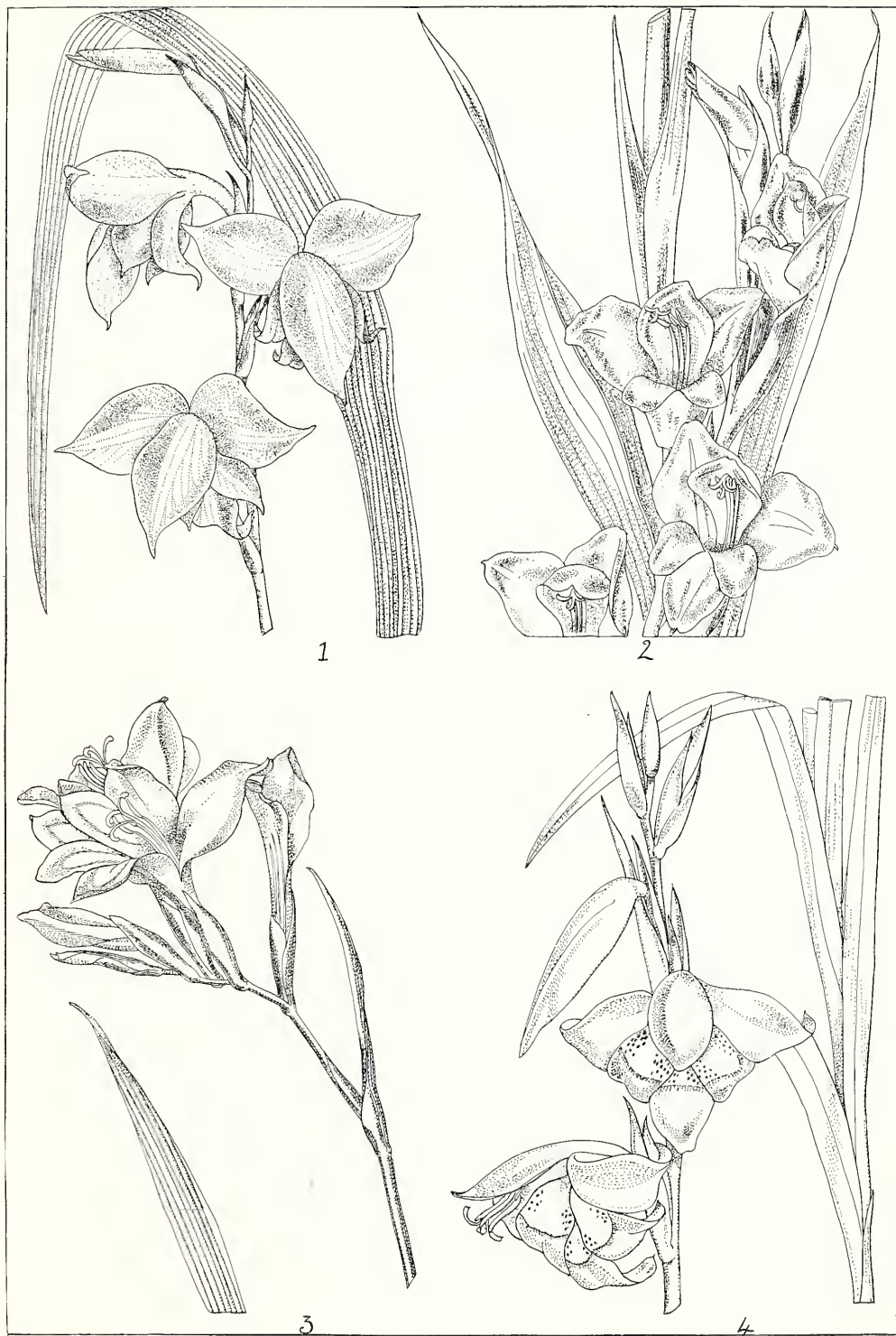


PLATE III.

1. *Gladiolus primulinus*, Baker. 2. *Gladiolus psittacinus*, Hook.  
4. *Gladiolus Saundersii*, Hook. f.

Del: Miss W. F. Barker.

3. *Gladiolus cardinalis*, Curt.



PLATE IV.

5. *Gladiolus oppositiflorus*, Herb. 6. *Gladiolus tristis*, Linn. var. *concolor*, Bak. 7. *Gladiolus blandus*, Ait.  
8. *Gladiolus spathaceus*, Pappe. 9. *Gladiolus purpureo-auratus*, Hook. f.

Del: Miss W. F. Barker.



hybrid between *G. cardinalis* and *G. oppositiflorus*, with the latter as the probable seed-parent.

**Insignis.** We must now return to the sale of Colville's

Chelsea nursery, from which Messrs. Lecombe Pince & Co., of Exeter, secured all the bulbs, including a hitherto unknown *Gladiolus* which flowered for them in 1839. This had deep red flowers with violet blotches on the lower segments. It was named *Gladiolus insignis* and was believed to be a hybrid, but the parentage is uncertain.

Nowadays, although *G. Colvillei* remains fairly distinct as a type (procurable also in white and pink forms), there are other early-flowering *Gladioli* not so clearly defined — quite possibly crosses with *ramosus*, *insignis* and certain Cape species. It is, for example, not unreasonable to believe that the blood of *G. blandus* exists in some of these early-flowering types which are now so intricately mixed. We find them merged under various fanciful names — “*praecox*”, “*nanus*”, “*floribundus*”, “*delicatissimus*”, etc. — all coined in earlier commercial practice. However, the name “*praecox*” can also refer to another group which I will later describe.

**Gandavensis.** Sixteen years after *G. Colvillei* saw the light, one of the most important events in the history of the modern *Gladiolus* took place on the Continent. This was the appearance of *Gladiolus gandavensis* — a hybrid which is often credited to Louis van Houtte, of Ghent, who named the plant “*gandavensis*”, described it in 1841, and stated the parentage to be *G. psittacinus* × *G. cardinalis*. But the honour of raising *G. gandavensis* must fall to Bedinghaus, gardener to the Duc d'Arenberg, of Enghien. He made the cross in 1837, exhibited the hybrid in 1839 or 1840, and sold one of the seedlings to Van Houtte. The parentage, as given by Van Houtte, was soon in doubt. Several people, including Herbert, tried the cross but failed to secure the hybrid, *G. gandavensis*. This could not be regarded as conclusive had not Herbert actually obtained *G. gandavensis* by crossing *G. oppositiflorus* with the equally tall and vigorous, red and yellow *G. psittacinus*. Other workers since then have also obtained *G. gandavensis* with these parents.

The original *G. gandavensis* was virtually an improved *G. psittacinus*. It had a forward-bending upper segment and the flowers were in shades and mixtures of red and yellow, often variegated. The colours were rich and the tall spikes were late-flowering. Van Houtte's variety *citrinus* was published in 1849. Extensive developments were carried out by Souchet, gardener at Fontainebleau to Napoleon III. Between 1852 and his death in 1880,

Souchet raised a large number of hybrids, often between *G. gandavensis*, *G. ramosus* and *G. floribundus*, and between selections from these crosses.

**Brenchleyensis.** Meanwhile, the hybridising of *Gladioli* had been prosecuted elsewhere, frequently involving *G. gandavensis* or its parents. William Hooker introduced *Gladiolus brenchleyensis* in 1846, its name being derived from Brenchley, in Kent, where Hooker lived. Although at one time thought to be a hybrid of *G. psittacinus* × *G. floribundus*, it is now regarded as merely a red form of *G. gandavensis*. *Brenchleyensis* crossed with the bright scarlet, white-blotched *G. cruentus* gave “*Alice Wilson*”, raised in 1869 by John Standish — his best hybrid after 10 years of work. It was a new “break”, with a reflexed, cream flower tipped deep carmine. It yielded other colours later, but eventually became merged with the other large-flowered hybrids.

**Lemoinei.** In 1875 M. Victor Lemoine, of Nancy, started his hybridising — a landmark in *Gladiolus* history. He took pollen from certain varieties of *G. gandavensis* and used it upon flowers of the deep yellow and heavily purple-blotched *G. purpureo-auratus*, at that time a new species from Natal. From this cross Lemoine obtained three seedlings. In August 1878 one of these flowered. This was *Gladiolus Lemoinei*, and from it he began to raise that fine race of hybrids whose value in the garden and in further hybridising was quickly realised. Varieties of *G. Lemoinei* were available from 1882. They were more graceful than the *gandavensis* group, flowered somewhat earlier, the blossoms were even more definitely hooded and they were carried on only one side of the stem. In time they yielded a wide range of colours, but the first were principally shades of yellow, red and reddish-purple, while dark purple blotches on the lower segments were a feature of this group and showed the influence of *G. purpureo-auratus*.

At least two strains of the same parentage as *G. Lemoinei* have been recognised in the past, these being *G. Froebellii* and *G. Engesseri*, both raised by Froebel & Co., of Zurich. A purple, violet and blue section has also been bred from the *Lemoinei* race, and it is possible that the lilac, purple and yellow *G. papilio*, from the Transvaal and Natal, may have been employed for this purpose.

One of the main objections to typical *Lemoinei* was the hood, this being so pronounced that the flowers were unsuitable for cutting. The fault was rectified in the next advance.



**Nanceianus.** In 1872 the striking *G. Saundersii* flowered at Kew. It was a species destined for great work. Indigenous to the Eastern Province, Transvaal and Natal, it has scarlet flowers, each with a central patch of white speckled red. In 1883 Lemoine used the pollen from some of his *G. Lemoinei* on flowers of *G. Saundersii*, and the *Gladiolus nanceianus* hybrids were born, flowering first in 1885, and being exhibited in 1889. It is believed that only two of the seedlings were used to found the new group.

*G. nanceianus* had certain drawbacks, but its varieties were all very free-flowering on branching stems, bearing exceptionally large, fully open, blotched flowers of good form and in bright colours ranging mainly around red and purple. Most important of all, the hood had been virtually lost. The flowers had an erect top-segment. It was a complete "break" from *G. Lemoinei*.

In the accompanying drawings, *G. Saundersii* appears to have an even more pronounced hood than *G. psittacinus*. This is due to the natural position in which the flower is borne and which thrusts the otherwise erect top segment horizontally forward.

The great value of the *G. nanceianus* varieties lay in their influence in breeding at the hands of James Kelway, of Langport, Somerset. Kelway had secured some of Souchet's *gandavensis* varieties in 1847 and, by the time *G. nanceianus* appeared, he had a good stock of the former. He crossed these with varieties of *G. nanceianus* and from this mating arose the famous Kelway hybrids, sometimes called *G. Kelwayi*.

**Childsii.** Meanwhile, another race was being developed — originally through the work of Max Leichtlin, of Baden-Baden. He was using *G. Saundersii* in 1874, and crossed this with *G. gandavensis* to get a hybrid which flowered in 1877 and was called *Gladiolus Leichtlinii*. Some of this race reached England, but in 1882 Leichtlin sold in France his whole remaining stock. In 1884 these were transferred to V. H. Hallock & Son, of New York, who worked up the strain and sold it seven years later to John Lewis Childs, also of New York. Childs put this group on the market in 1893 as *Gladiolus Childsii*. Briefly, the *Childsii* varieties had richly coloured, spotted and lined, wide-open flowers of large size, with broad petals and on long firm stems. They developed tremendously in America, where they stood up well to the climatic conditions and became popular both for garden decoration and for cut flowers.

**Turicensis.** A form of *G. Saundersii* has been recognised in some quarters under the additional name "superbus" or "grandiflorus", and it is said that a cross between this and a large-flowered *gandavensis* variety gave Froebel & Co., of Zurich, a plant with deep crimson flowers of moderate size and having white marks on the lower segments. It is referred to as *Gladiolus turicensis*.

**Burbank and Groff's Hybrids** Back in America, Luther Burbank was a most energetic and prolific hybridist who crossed almost everything on which he could lay his hands — often with amazingly good results. With the aim of raising a race of *Gladioli* suited to the conditions in California he started, about 1890, to breed a strain of vigorous and stout-petalled plants. In this he was successful, but later sold his stock to Mr. H. Groff, of Ontario, who had already acquired a big collection of *gandavensis*, *Childsii* and *Lemoinei* varieties. Groff then inter-crossed the whole and, by selection and in-breeding, worked up a strain designed principally for cut flowers — vigorous, with large blossoms and a wide range of colours.

**Princeps.** *G. cruentus* now appears again on the scene. It was treated with the pollen of *G. Childsii* var. Mrs. Beecher by Dr. van Fleet, who flowered the seedlings about 1897. He selected a form of some two feet in height, with round, fully open, large flowers the colour of which was rich blood-red, with broad white and cream marks in the throat. This he called *Gladiolus princeps*, and it yielded a number of attractive variations and hybrids, some being taller than the original.

**Kunderdii.** There were other enthusiastic workers in America. Starting in 1896, A. E. Kunderd, of Indiana, commenced to select and cross existing *Gladiolus* hybrids and varieties, and he soon decided to concentrate upon securing a strain in which the petals would be waved. After 15 years he had obtained his first "ruffled" *Gladiolus* — an amber-white which he called "Kunderd Glory". This was followed by others similarly ruffled, in colours from white through ivory and cream to yellow, and from blush to salmon. There were both blotched and lined varieties. These were called collectively *Gladiolus Kunderdii* and, as a still further advance, he selected and bred a strain with fringed segments and which he called "laciniatus".

In present-day catalogues the title "large-flowered" *Gladioli* covers all those whose origins are embedded in these ramifications of *gandavensis*, *Lemoinei*, *Childsii* and *nanceianus*. The good work still continues, and one of the

later developments in France and America has been the use of *G. dracocephalus* — a species from Natal which has yellowish green flowers veined and dotted with dull purple.

**Praecox.** Here we come to a section which sometimes passes under the name “*praecox*”, but which has nothing to do with the *Colvillei-ramosus-insignis* set. These have been raised in Germany and elsewhere and are generally supposed to be crosses between selected “*precocious*” forms of *gandavensis*, *Lemoinei*, *nanceianus* and *Childsii* — this being a fairly successful effort to obtain an early-flowering strain of the above.

**Primulinus.** To make complete our history of the modern *Gladiolus*, we must now go outside the Union, for Rhodesia has given us perhaps the greatest advance in *Gladioli* since the hybrid *gandavensis*. The striking, lemon-yellow, heavily-hooded *Gladiolus primulinus* was first found in 1887. It flowered at Kew in 1890, but was not used for hybridising until its re-introduction in 1902. All the present-day varieties of the *primulinus* group are the result of crossing the species with most of the races of summer-flowering *Gladioli* whose origin has been given above.<sup>3</sup> Their evolution has been rapid since 1908 — an eventful year, for within a few months MM. Cayeux and Le Clerc exhibited *G. primulinus* hybrids in Paris, MM. Lemoine et Fils introduced the hybrid to their catalogue, and London saw Dr. van Fleet's hybrids from America which were being handled by the English firm of Wallace & Co. Those of Lemoine were *G. primulinus* crossed with varieties of his own *Lemoinei* and *nanceianus*, and it is probable that varieties of *Childsii* were prominent in the first American strains.

Hybridists and growers almost fell over each other in the rush to improve and popularise this new type of *Gladiolus*. The English firm of Kelway & Son, having exhibited their

first *G. primulinus* varieties in 1910 and 1912, put them on the market as *Gladiolus Langprim*. The result of crossing *G. primulinus* with varieties of *G. Kelwayi*, this became one of the finest strains procurable, with many excellent varieties. Kunderd, in America, produced his first *G. primulinus* named hybrid — the almost orange “*Alice Tiplady*” — in 1915, and it is still in commerce. Others arose, in rapid succession, from various sources and the range of colours quickly spread — now extending from white to lemon, citron, gold and orange, from palest pink to deep rose, cherry, scarlet and crimson, through shades of mauve to purple, and with many subtle variations of salmon, apricot, bronze, copper and terra-cotta.

The introduction of new varieties of this important race still continues and, in the opinion of many people, it has not been accompanied by uniform good taste. While most of the earlier varieties have an elegant deportment hitherto unknown in the summer-flowering *Gladioli*, and showed a return to hooded flowers of an improved and attractive form, coupled with good constitution and delightfully soft pastel colours, there has been a tendency towards coarseness during recent years. While one set retains the characteristic grace and well-developed hood of *G. primulinus*, another set has evolved (particularly in America) which are much nearer in appearance to the wide-flaring flowers and high colours of the larger-flowered races. There is now every variation between these two types, but, so far as possible, the larger forms are usually separated under the name *G. primulinus grandiflorus* hybrids.

It will be seen that we have at this stage, horticulturally and on the basis of their origin, two principal groups of *Gladioli*. First there is the very early-flowering *Colvillei-ramosus-insignis* section, with their varieties and close allies. Secondly, we have the summer-flowering section which has been gleaned from (a) the hybrids of *gandavensis*, *Lemoinei*, *nanceianus* and *Childsii*, and from (b) the above crossed with *G. primulinus*. As may be imagined from the parentage, the characters of the two groups have certain differences — the true early-flowering *Gladioli* being much more dwarf and carrying the flowers scattered on the more slender stems, while the summer-flowering section are taller and have the stouter stems closely set with a double row of flowers, although alternately arranged.

**Herald Gladioli** It was inevitable that efforts would be made to breed intermediate strains embodying the best qualities of both

**Tubergeni and Prinsianus.** groups. Probably the most successful work in this direction has been that of Van Tubergen. He is believed to have used varieties of the “*ramosus*” and

<sup>3</sup>For many years *Gladiolus primulinus* has been called “*Maid of the Mist*” because it grows in the spray of the Victoria Falls, although its geographical range was known to cover a wide area in Rhodesia, Tanganyika and Kenya. Recently Mr. Collingwood Ingram has suggested that the typical sulphur-yellow, heavily-hooded Rhodesian type is confined to the vicinity of the Falls and should be given his name of *G. nebulicola*, while he would have us retain *G. primulinus* for the type which grows on the dry bush-veld. The hybrids certainly show no particular preference for a moist position in gardens, and this is not an unusual feature in *Gladioli*, since certain of the species which have been used in hybridising are accustomed to more moist natural situations than the hybrids enjoy in gardens — e.g. *G. cardinalis*. It is possible that both *G. primulinus* and Ingram's *G. nebulicola* have been used in hybridising, and probably also the closely related *G. Quartinianus*, a plant whose yellow flowers are flecked and flushed with red, and which was discovered in Abyssinia in 1876, but is also known to range so far south as Rhodesia and Angola.



"nanus" type, crossed with some of the earlier-flowering forms of *G. Childsii*. Van Tubergen showed his first results at Haarlem in 1914, where they created a favourable impression. To these he gave the name Herald Gladioli, and several varieties have since been raised and are in commerce, although it is still a comparatively small group. They are somewhat taller than the early-flowering Gladioli, from which they inherit characteristic blotches on the lower segments. Unfortunately, they do not carry many flowers, but these are borne in the same manner as those of the summer-flowering Gladioli and their season is a little earlier. The colours range from orange, combined with scarlet or salmon, to pure salmon and salmon-rose.

Van Tubergen followed this by raising his *G. Tubergeni*, which is a strain based upon crosses between the Herald group and *G. tristis* var. *concolor*, and these are said to be even earlier in flower than the Herald Gladioli.

In 1926 England entered the field, via Mr. H. Prins, of Wisbech, who somewhat advanced the flowering season of *G. primulinus* varieties by crossing *G. primulinus* with *G. Colvillei*, the progeny being called *Gladiolus prinsianus*.

This, then, is the foundation upon which the *Gladiolus* exists to-day as a vast and ever-increasing genus of valuable garden plants. The total number of varieties in cultivation all over the world must now run into thousands. Nobody can predict with accuracy what the future developments may be. Scores of species have never been used, and the chance of securing an entirely new "break" in Gladioli need not be regarded as fantastic.

In South Africa we have several blue species, and the suggestion has often been made that an improved race of

blue hybrids might be evolved. Other people want fragrant Gladioli, and several attempts have been made to secure this feature — although perhaps fragrance is not necessary in the summer-flowering section which rely mainly upon mass effects of colour for their value in the garden.

A hundred years ago Dean Herbert raised his *G. fragrans*, which he obtained by crossing *G. tristis* with *G. recurvus*, and another fragrant hybrid was *G. odoratus* (*G. hirsutus* × *G. spofforthianus*). To-day there is a tendency to make similar hybrids, or to cross existing garden varieties with fragrant species. For example, a few years ago, in California, *G. tristis* was successfully crossed with the early, "shot" salmon-red *G. Prince of Wales*, and the fragrance of *G. tristis* was, according to report, transmitted to the offspring. The present writer has his own vision of a race of fragrant bells — the slender grace of the Caledon, Tulbagh and Riversdale Bells combined with the definite fragrance possessed by certain of the Afrikanders. Again, the distinctive shape of the species *triangularis*, *Kirkii* and *Stanfordiae* might with advantage be brought into Gladioli of the future. There are many fields still untouched by the hybridist.

We live in an age of speed and comfort — at our hands the accumulated experience and knowledge of generations. It is good to sit back and dwell for a while upon the industry and patience that has been devoted by many men to one genus of plants and over a long period of time. The pioneers often worked by pure experiment with species of entirely unknown potentialities, and were sometimes the possessors of lucky chance. But they laid the foundations for the work which is still going forward in making our gardens richer and more beautiful.



# Growing Plants from Seeds.

By S. G. FIEDLER.

IN 1936 I became a Member of the Botanical Society of South Africa and received as such a number of seed packets under the free distribution arrangement of the Society.

Following the suggestion on the seed list that Members inform the Director what results they obtain from sowing I wrote Mr. R. H. Compton, so much more as I had had a remarkably high percentage of germinations, especially of seeds of *Mesembryanthemums* from the Karoo Garden at Whitehill. He has asked me to describe my method of sowing and I am very pleased to do so, for the trouble I take over this matter is amply repaid by the number of good plants which result.

Seed raising has always fascinated me and I have sown many kinds of rare seeds in the ordinary way described in garden handbooks, generally with poor results, until I was taught step by step how to prepare the soil and how to sow the seeds. If, therefore, the following is a rather detailed description it is because I have found that even a small deviation had a marked effect on the result.

## PREPARATION OF THE SOIL.

For this I use:—

1. A good fibrous loam obtained from old well-rotted grass turves, which have been stacked for a year grass downwards. When rather dry it is rubbed through a quarter-inch sieve (4 meshes to 1 inch), the lumps not passing through being thrown away.

2. Sharp clean sand.

3. Ground red bricks or broken pots. Here in England this material can either be bought from the nursery sundriesmen, or be prepared at home on a very useful crock grinder, but before I bought this grinder, I have used a hammer to crush the crocks well, although it is rather laborious when a quantity is required, for it must be broken quite fine — from dust to  $\frac{1}{16}$ " in diameter.

4. Sorbex Peat — this is a very valuable material. It is a peat derived from *Sphagnum* moss, perfectly free from weed seeds and beautifully clean to work with. In the dry state it can be rubbed with the hands to a fine homogeneous mass, and it absorbs and retains moisture for a long time.

It is used extensively for packing bulbs in, and small quantities may be obtained in this way, but I believe it can be bought almost anywhere nowadays. It is really worth the trouble to secure Sorbex for mixing in the compost.

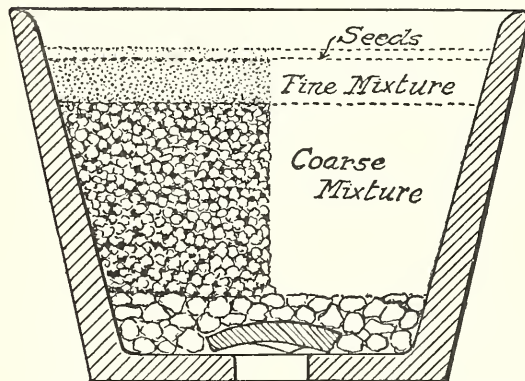
Take 2 parts Loam.

1 „ Sand.

1 „ Ground Bricks or Cocks.

1 „ Sorbex well rubbed out, moistened and thoroughly mixed.

## SEED SOWING.



For this I use 3" or 4" pans according to the quantity of seeds I have, as these must not be sown too close. A household sieve (rather fine, 12 meshes to the inch), and a flat disc about  $2\frac{1}{2}$ " in diameter — (a round tin such as those in which throat pastilles or the like are packed, is very useful, but it should be quite flat without embossed letters for even the slight unevenness these would make in the soil causes the seeds to roll down and lie too close together in the furrows).

I now place a number of pans on the bench, cover the drainhole with a crock and put a  $\frac{1}{2}$ " layer of coarse draining consisting of  $\frac{1}{4}$ " shingle or broken bricks or crocks, charcoal or mortar rubble of similar size. Then fill the pot to within  $\frac{1}{2}$ " of the rim with the prepared soil, make it reasonably firm by dabbing it with the finger tips and make the surface smooth with the tin box lid. I then take some soil mixture in the household sieve and shake over the pan until filled to within a  $\frac{1}{4}$ " from the rim, make

smooth and firm again with the tin box, and place the pan in a basin with water, leaving it there until the soil is thoroughly moistened. The coarser matters which did not pass through the sieve are put in the next pan on top of the drainage, and the level made up with prepared soil to  $\frac{1}{2}$ " from the rim, firmed, a  $\frac{1}{4}$ " layer of fine mixture put on top, firmed, moistened in the basin and so on until all your pans are prepared.

When thoroughly moistened the pan is placed on the ground to allow superfluous water to drain away.

The seeds are now sown on the smooth surface of the soil and slightly covered by gently shaking the sieve over the pan. Do not hold it high over the pan otherwise the force of the falling material may displace the fine seeds. Very small seeds should only have a slight covering, larger seeds such as *Gasterias* and *Haworthias* a layer approximately double the diameter of the seed. Large seeds should be planted individually and covered up to  $\frac{1}{4}$ ". Do not firm the covering soil.

The pans are now placed in a box approximately 6" deep with a 1" layer of  $\frac{1}{4}$ " shingle on the bottom and covered with glass panes, which are turned morning and evening and any condensed moisture thereon wiped off. If there is a lot of moisture, tip the glass and let it run back on the shingle, but be careful not to pour it on to the seed pans.

The temperature in the box was kept at 55° and no further watering of the seed pans was found necessary until nearly one month after. By then all the *Mesembryanthemum* seeds had germinated, germination generally beginning 5 days after sowing, and in another week most of the seedlings were up. When the first true leaves started to appear the pans were moved to another box and plunged in a moist mixture of half sand and half Sorbex, and placed in a light position in the greenhouse.

Unfortunately I was away nearly two months in June and July, where the seedlings remained in the greenhouse well ventilated to give them a lot of fresh air, but kept rather dry. When I returned they had grown into fair-sized plants as shown in the accompanying photographs and badly needed pricking out into single pots.

This was done and the pots plunged in an open frame outdoors where in the warm and rather dry summer we have enjoyed in the south of England this year they have established themselves very well, and grown to good sizes, even two *Stomatium Fulleri* have bloomed five months after sowing.

In conclusion, it may be of interest to readers to hear that in some cases where I received a large quantity of seeds I sowed a batch in a different soil mixture, the same as I used some years ago, consisting of a mixture of 2 parts loam, 1 part sand, 1 part sifted mortar rubble and 1 part leaf-mould.

In this germination was not nearly so high, there was also a certain amount of damping off which did not take place in the new mixture. The old mixture was also more difficult to keep at the right degree of dampness.

In some pans I placed the earth crumbs from the loam left on the sieve in the bottom of the pan as drainage instead of shingles. While the seedlings were growing, there was no noticeable difference, but when pricking out I found the tips of the roots of the seedlings had grown into the earth lumps from which they could not be freed without damage, whereas the plants grown in pans with shingle drainage could be separated without damage and got established in their pots much quicker than the former.

If pans are not available I should use 4" pots and make a 1" drainage of  $\frac{1}{4}$ " gravel with a small addition of Sorbex to prevent the extra thickness of gravel becoming quite dry. On the other hand there must not be so much Sorbex that it stops the drainage.

If these notes will prove useful to any of the Journal's readers I shall feel very happy, for I quite realize that conditions are entirely different in sunny South Africa from the dull foggy atmosphere of South-East England, only twenty miles from the heart of London, and that there in their native home the seeds may germinate and seedlings grow without need of the special care we must take with plants which rest in summer and grow in the wet damp winter of the Northern Hemisphere.

Rosehill,

Claygate, Surrey.

#### EXPLANATION OF PLATE V.

- Fig. 1. Seedpans sown 18th Feb., 1937, photographed 20th May, 1937.
- Fig. 2. Seedpans sown 18th Feb., 1937, plunged in sand and Sorbex, photographed 27th July, 1937.
- Fig. 3. *Cheiridopsis Comptonii*, sown 18th Feb., 1937, photographed 12th August, 1937.
- Fig. 4. *Cheiridopsis van Zyltii*, sown 3rd April, 1937, photographed 12th August, 1937.

#### ADDENDUM.

Mr. Fiedler has sent me reports as to the germination which he has obtained from seeds from Kirstenbosch and Whitehill, and he allows me to publish these results, which will be of considerable interest to members of the Botanical Society. They show that the methods used by Mr. Fiedler are such as to give very satisfactory results with South



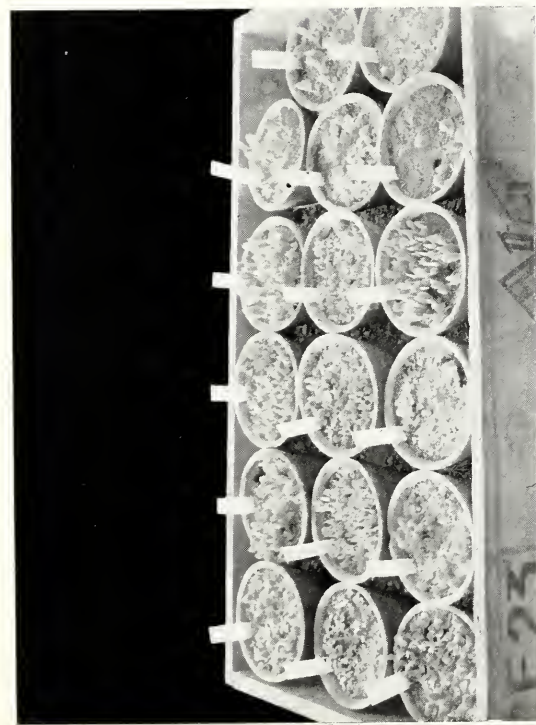


Fig. 1.



Fig. 3.



Fig. 2.

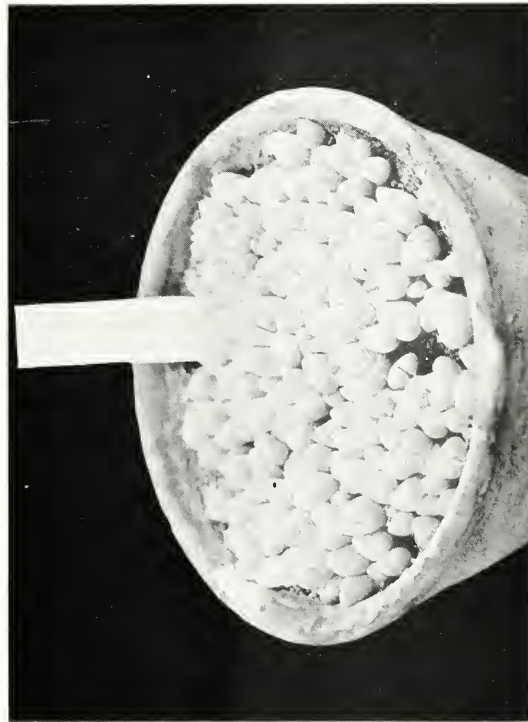


Fig. 4.

Photo: S. G. Fiedler.





Fig. 5.



Fig. 6.

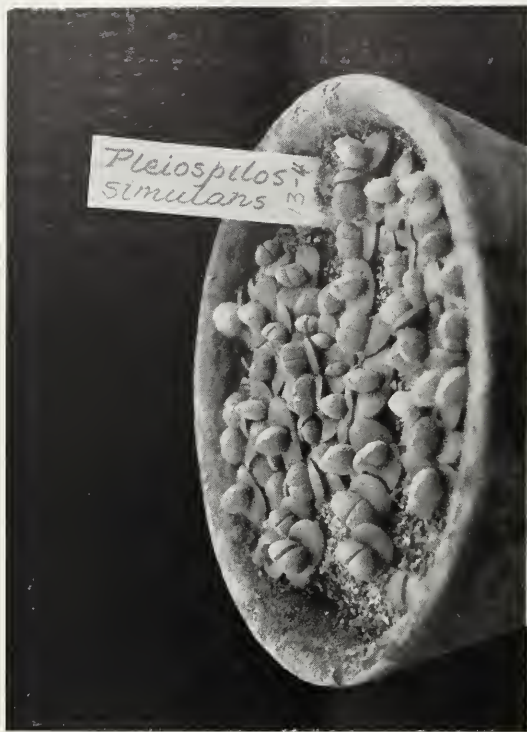


Fig. 7.



Fig. 8.

PLATE VI. GROWING PLANTS FROM SEED.

Photo: S. G. Fiedler.

African seeds, both of succulent and of other plants. They further provide a very welcome testimony to the quality of the seeds sent out by the National Botanic Gardens. It is almost proverbial that "botanic garden seeds never come up"; and I occasionally get reproachful letters from correspondents complaining that the seeds sent them have failed to germinate. In view of Mr. Fiedler's results it appears that Kirstenbosch and Whitehill must be excepted from the unkind criticism levelled at botanic gardens and that failure to raise our seeds may reflect on the skill of the gardener!

Mr. Fiedler's results for 1937 are as follows:—

**SOWINGS ON 3rd APRIL.  
KIRSTENBOSCH SEEDS.**

| <i>Species</i>                   | <i>Percentage<br/>Germinated.</i> |
|----------------------------------|-----------------------------------|
| <i>Aloe rubro-lutea</i>          | 0                                 |
| <i>Babiana</i> spp. (mixed)      | 80                                |
| <i>Berzelia lanuginosa</i>       | 0                                 |
| <i>Dierama pendula</i>           | 90                                |
| <i>Dorotheanthus criniflorus</i> | 70                                |
| <i>Gazania longiscapa</i>        | 0                                 |
| " <i>pavonia</i>                 | 30                                |
| " <i>pinnata</i>                 | 50                                |
| <i>Gerbera Jamiesonii</i>        | 80                                |
| <i>Grewia occidentalis</i>       | 50                                |
| <i>Indigofera langebergensis</i> | 50                                |
| <i>Leucospermum grandiflorum</i> | 50                                |
| " <i>nutans</i>                  | 0                                 |
| " <i>reflexum</i>                | 0                                 |
| <i>Morea bicolor</i>             | 90                                |
| " <i>ramosa</i>                  | 90                                |
| <i>Pittosporum viridiflorum</i>  | 0                                 |
| <i>Protea compacta</i>           | 3 of 9 seeds                      |
| " <i>grandiceps</i>              | 6 of 9 seeds                      |
| <i>Richardia albo-maculata</i>   | 95                                |
| " <i>Rehmannii</i> (pink)        | 95                                |
| <i>Watsonia meriana</i>          | 45                                |
| " <i>rosea</i>                   | 70                                |

**WHITEHILL SEEDS.**

|  |               |
|--|---------------|
| <i>Caralluma lutea</i>   | 0             |
| <i>Duvalia parviflora</i>  | 0             |
| <i>Hoodia Gordonii</i>   | 0             |
| <i>Stapelia Pillansii</i>  | 0             |
| <i>Trichocaulon Bainii</i>   | 0             |
| <i>Euphorbia bubalina</i>  | 100           |
| " <i>clava</i>   | 0             |
| " <i>Dregei</i>  | 0             |
| " <i>hamata</i>  | 0             |
| " <i>multiceps</i>   | 5 of 6 seeds  |
| " <i>stellaspina</i>   | 3 of 20 seeds |
| " <i>tuberculata</i>   | 0             |
| <i>Lithops Fulleri</i>   | 95            |
| " <i>Herrei</i>  | 0             |
| " <i>karasmontana</i>  | 60            |
| " <i>Persii</i>  | 80            |
| " <i>pseudotruncatella</i>   | 75            |
| " <i>sp.</i>   | 80            |
| <i>Mesembryanthemum Frithii</i> — germinated well after six months |               |
| " <i>obtusum</i>   | 70            |
| <i>Titanopsis Schwantesii</i>                                      | 80            |
| " <i>setifera</i>  | 75            |
| <i>Rimaria Comptonii</i>   | 20            |
| " <i>Heathii</i> var. <i>major</i>                                 | 60            |
| <i>Faucaria</i> (mixed)  | 75            |
| <i>Cephalophyllum tricolor</i>                                     | 0             |
| <i>Cheiridopsis Pillansii</i>                                      | 50            |
| " <i>van Zyllii</i>  | 85            |

| <i>Species</i>                   | <i>Percentage<br/>Germinated</i> |
|----------------------------------|----------------------------------|
| <i>Conophytum calculus</i>       | 40                               |
| " <i>Pillansii</i>               | 35                               |
| <i>Dinteranthus puberulus</i>    | 20                               |
| <i>Ebracteola Montis-Moltkei</i> | 85                               |
| <i>Gibbaeum album</i>            | 60                               |
| " <i>geminum</i>                 | 80                               |
| " <i>pubescens</i>               | 0                                |
| <i>Lapidaria Margaretae</i>      | 70                               |
| <i>Glottiphyllum</i> (mixed)     | 5                                |
| <i>Pleiospilos Roodiae</i>       | 75                               |
| " <i>simulans</i>                | 60                               |
| <i>Stomatium deformis</i>        | 85                               |
| " <i>Fulleri</i>                 | 60                               |
| " <i>mustellinum</i>             | 80                               |
| <i>Apicra deltoidea</i>          | 10                               |

In a later letter Mr. Fiedler mentions that he had made germination tests with seeds of Mesembryaceae sent from the Gardens which had been kept in England for six months before sowing. These were sown on 18th October, and the seedlings were counted on 1st November. The following were the results.

|                                  | <i>No. of<br/>Seeds Sown</i> | <i>No.<br/>Germinated.</i> |
|----------------------------------|------------------------------|----------------------------|
| <i>Argyroderma testiculare</i>   | 200                          | 77                         |
| <i>Didymaotus lapidiformis</i>   | 20                           | 8                          |
| <i>Dinteranthus microspermus</i> | 21                           | 0                          |
| <i>Dinteranthus puberulus</i>    | 300                          | 0                          |
| <i>Faucaria Hybrid</i>           | 12                           | 0                          |
| <i>Glottiphyllum Neilii</i>      | 50                           | 50                         |
| " <i>linguiforme</i>             | 150                          | 44                         |
| <i>Lithops Meyeri</i>            | 150                          | 43                         |
| <i>Pleiospilos Bolusii</i>       | 120                          | 1                          |
| " <i>prismaticus</i>             | 200                          | 144                        |
| " <i>Roodiae</i>                 | 29                           | 15                         |
| " <i>simulans</i>                | 40                           | 1                          |
| <i>Rimaria Comptonii</i>         | 100                          | 28                         |

Mr. Fiedler remarks that "new seedlings appear every day so germination will again be very much like the lot sown in the spring," and adds, "if I made any complaint it would be that one gets too many plants from your seeds."

Mr. Fiedler asked me to say that he is "particularly interested in succulents of South Africa, and if any of the Members have seeds that they would send him he would be very grateful indeed, and would of course reciprocate by sending such seeds of European plants as he would be able to save from the large collection of Alpine plants he is growing." His address is Mr. S. G. Fiedler, Rosehill, Claygate, Surrey, England.

R. H. COMPTON,  
*Editor.*

**EXPLANATION OF PLATE VI.**

- Fig. 5. *Lithops Fulleri*, sown 3rd April, 1937, photographed 12th August, 1937.  
Fig. 6. *Lithops Lesliei*, sown 18th Feb., 1937, photographed 12th August, 1937.  
Fig. 7. *Pleiospilos simulans*, sown 18th Feb., 1937, photographed 20th May, 1937.  
Fig. 8. Photograph showing *Stomatium* seedlings rooting through soil-ball from seedpan. Sown 18th Feb., 1937, photographed 12th August, 1937.



# Letters from an Early Cape Botanist.

By MIA C. KARSTEN.

## INTRODUCTION.

**A**MONG the collection of old manuscripts kept in the library of the "Hollandsche Maatschappij der Wetenschappen" (Dutch Society of Sciences) at Haarlem we find an extensive correspondence between Prof. Dr. Buitenzorg, Java, and Dr. MART. VAN MARUM, the C. G. C. REINWARDT, founder of the Botanic Garden of famous Haarlem physicist.

Of the great number of letters (as many as 126!) sent by REINWARDT to his friend VAN MARUM, that have been left, there are only three from the Cape — where he stayed for several weeks on his way to the East Indies, — two of these being very long and detailed and of absorbing interest, the third one rather short and of minor importance.

In his South African correspondence which is reproduced below in English translation, REINWARDT proves himself to be a keen botanist and an all-round naturalist — the unequalled wealth of the Cape vegetation did not fail to fascinate him and more than once he gives expression to his deep regret that he could not share his botanical delights with VAN MARUM.

Before proceeding to his letters, we will give a short biographical account of this botanist.

CASPAR GEORG CARL REINWARDT was born at Lüttringhausen in Prussia, June 3, 1773. He visited the grammar school at Lennep, where his parents had moved soon after his birth. In 1787 he came to Amsterdam, where one of his relations had a chemist's shop. Here at this chemist's and at the *Athenaeum illustre* (the later University of Amsterdam) he applied himself to Botany and Chemistry. In the early part of the 19th century the Amsterdam botanic garden or *Hortus Amstelodamensis* was in a period of great prosperity. In this connection following

quotation from a biographical account of REINWARDT by W. H. DE VRIESE<sup>1</sup> may be of interest: ". . . and the well-known COMMELIJN has erected a column of honour for Amsterdam and for the science of his time, by the description of the *Hortus Amstelodamensis*: an institution that continues to enhance the glory of the Netherlands in science and art of cultivation. Men of influence and wealth seemed to have made it their task to advance and to patronize by ample means the knowledge of the vegetable kingdom. And the names of DE VRY TEMMINK, VAN DE POLL, DEUTZ and TEN HOVEN, with that of GEORGE CLIFFORT, are honoured by everybody who appreciates science, for what they have contributed to the promotion and the propagation of LINNAEUS' publications, and to the promotion of THUNBERG's discoveries. Particularly by his frequent visits to the Amsterdam Botanic Garden and by attending the botanical lectures given by Prof. G. VROLIK, REINWARDT has found a new stimulus and an incitement to the study of the most beautiful and the most charming of all sciences."

In 1801 REINWARDT was appointed as a professor of Chemistry and Botany and Natural History at the then Academy of Harderwijk (Holland), the honorary degree in Medicine and Natural Philosophy having been conferred on him before.

After some other activities we will not quote here, REINWARDT was appointed as a professor in ordinary of Natural History and as a supernumerary professor of Chemistry and Pharmacy at the *Athenaeum illustre*, by decree of July 1, 1810. A period of great activity was following now. He was a very active member of the Royal Institute and of the "Hollandsche Maatschappij der Wetenschappen". And finally, October 29, 1815, he sailed for the East Indies on board the Dutch man-of-war "Evertsen", with the title of "Director for the affairs of Agriculture, Arts and Sciences on Java and neighbouring isles". The "Evertsen" formed part of a squadron of ships that conveyed the Governor-General BARON VAN DER CAPELLEN and the "Commissarissen-Generaal" ELOUT and BUYSKENS to the Indies. REINWARDT was placed at the disposal of these Gentlemen. April 27, 1816, after a six months' voyage, the "Evertsen" dropped her anchor at the road of Batavia. This long voyage was due to a longer stay at the Cape of Good

<sup>1</sup>Reize naar het oostelijk gedeelte van den Indischen Archipel, in het jaar 1821, door G. G. C. Reinwardt. Uit zijn nagelaten aantekeningen opgesteld, met een levensbericht en bijlagen vermeerderd, door W. H. de Vriese, med. dr., Hoogleraar aan 's Rijks Hoogeschool te Leiden. Amsterdam, 1857.

[Journey into the eastern part of the Indian Archipelago in the year 1821, by G. G. C. Reinwardt. Drawn up from the notices he has left behind, and enlarged with a biographical account and some appendices by W. H. de Vriese, med. dr., Professor in the Leyden University. — Amsterdam, 1857.]



Hope, "which", as we read in DE VRIESE's book, "would certainly have been fruitful for the collections of the country, if the objects collected at the Cape had not been swallowed by the waves, at the wreck of the "Amsterdam" in Algoa Bay at the southern point of Africa (in 1818), with which ship, sailing home from the Indies, a number of natural products was sent for the National Museum". Regarding his work in the Indies, we will confine ourselves to mention that he put before the "Commissarissen" a project for a botanical garden, with which he laid the foundation of the famous Buitenzorg garden.

REINWARDT was accompanied on his journey to the East Indies by WILLIAM KENT, a gardener by profession and formerly curator of the academical garden at Harderwijk. This man was considered by REINWARDT as very good at collecting and preparing natural objects and therefore taken with him to Java, where he became the first curator of "'s Lands Plantentuin".

REINWARDT embarked for the homeward journey from the Indies in June 1822. In the meantime he was appointed as a professor of Botany in the Leyden University, in succession to Prof. S. J. BRUGMANS, and May 3, 1823 he acceded to the Leyden professorate, from which he retired in 1845. He died on the 6th of March, 1854.

Dr. MARTINUS VAN MARUM (1750-1837), the Haarlem physicist to whom following letters are addressed, may be ranged among the most prominent practisers of the natural sciences of those days. He has made his name as the inventor of his famous electrical machine, that is still to be seen in the Teyler Museum at Haarlem. VAN MARUM was the first librarian of the Teyler Foundation and Secretary of the "Hollandsche Maatschappij der Wetenschappen". It is but little known, however, that he was a very keen and able botanist too, and a collector of plants which he grew in the garden of his country-seat "Plantlust" near Haarlem. He was corresponding with well-known botanists and collectors of plants in England, Germany, Sweden, France, like HAWORTH, BANKS, WILLDENOW, SALM-DYCK, THUNBERG, PERSOON. In a letter sent to the Swedish botanist CARL PETER THUNBERG — who was famous for his exploration of the Cape vegetation — VAN MARUM writes: ". . . for it is the *Regnum vegetabile*, of which I make my special study above all". He was particularly interested in succulent plants, and in this connection we may refer to REINWARDT's letters.

Before concluding this introduction I wish to tender my best thanks to the Hon. Secretary of the "Hollandsche

Maatschappij der Wetenschappen", Prof. A. F. HOLLEMAN, who kindly enabled me to examine this old correspondence.

## FIRST LETTER FROM THE CAPE.

Addressed to:

Den Weledelen Heere

M. van Marum

Med. Dr., Directeur van Teylers' Museum,

Secretaris der Maatschappij van Wetenschappen,  
enz., enz., te Haarlem.

Capetown, January 15, 1816.

"Dear Friend! In order to save paper — so that my letters will not be too heavy — and not to have to repeat the same things twice, I leave open the enclosed note to De Vries, from which you may gather that I have arrived safe and sound at the Cape.

When you have read this note, I beg you to envelop it, just like the letter to my mother, and forward them immediately. I hope the letters I have dispatched to you off Madeira and St. Jago, have reached you likewise.

As soon as I arrived here, I started my botanical peregrinations in the vicinity of this town, and the good Genius that watches over our Friendship, must already have transferred to you, how these walks are taken with the continual thought of you, with the continual expression of the Wish, *this Mr. van Marum ought to see*; hardly ever do I find a nice plant, which I should not like to have dug out immediately and transferred to your *Plantlust*. Kent, who of course nearly always accompanies me, may testify this. Although on our arrival here everybody told me that the flowering season of the first plants was over and that on the veld everything was dry just now, because at the moment we are here in the middle of the summer, I do find, however, ample food for my desire of knowledge and delight on my walks. How will this be in the so-called true flowering-time!

I can gather this to some extent from what is left of that more favourable time. Of the *bulbosa* we still frequently find the withered leaves and overblown peduncles, while a little digging in the ground immediately produces a great number of bulbs. Nevertheless there is a lot to be found even now. The Protea, Erica, Lobelia, Passerina, *Pelargonium tuberosum*, *Polygala*, *Crassula*, and a great number of other plants are flowering luxuriously and in abundance, and hardly have we been for a few hours in the veld, when our hands and portfolios are so full, that it would take

many days, to examine, to analyze and to classify it all. The more I gather of all these botanical treasures, the more I regret that I cannot enjoy them to the full, as I should like to.

You yourself will be able to realize this. Many of the beautifully flowering branches have already faded before we get home. Time and also subsidies fail for a close investigation of many of these plants, and a mere WILLDENOW or PERSOON does not suffice for this work. Botanists who might be of some help to you, or who might give you the benefit of their greater experience, are no more to be found here than other men of letters. Nevertheless this only superficial inspection of the Cape Flora is of great value to me, but it would be infinitely more valuable, if I were in the position to share my pleasures with you, or if I saw at least a possibility of sending you something or other. This brings me at the same time to your proper commission with regard to the various Species of *Aloe*, for it has been my first work to make inquiries after this matter. This is how it stands: There grows not a single *Aloe* in the vicinity of Capetown; the various species are all scattered in different places of this Colony hundreds of miles away. There is nobody here in Capetown who exactly knows where the rarest Species grow; no more is somebody to be found here, who collects and cultivates them, with the exception of a Gentleman with whom I found a few interesting *plantae Succulentae* which I shall examine closer with the aid of HAWORTH<sup>2</sup> and which I shall try to procure for you and our Friend the Count of Salm.<sup>3</sup> I may find something more to be added to this, on my tour of about 8 days inland, on which I set out to-morrow. The greatest difficulty, however, which I do not yet see how to overcome, is how to let you have those plants. Sending them direct from here to England has been dissuaded me by everybody, even by the Secretary of the Government here, who says that too many difficulties will rise at the Custom-houses, both here and in England, and he feels almost sure that it will prove to be a failure. So the only possibility is to send the plants direct to Holland, but at the moment there is no opportunity for that, no more will there be, to all probability, in the 2 or 3 weeks that we are staying here. Consequently I have no alternative but to find somebody else whom I can entrust with sending off to your address the plants I intended to

send you myself, if they are worth while, for which purpose I hope to engage the above-mentioned Gentleman. In Europe one can hardly form an idea of the trouble and expenses attached to the collecting of many natural objects here in Africa itself. A collection of *Succulentae* like yours and that of SALM would cause here at the Cape itself the greatest surprise! You pay here 3 to 4 Ryksdalers for a man who accompanies you one day as a guide or porter; 40 Ryksd. for a cart for only one day, and all the rest in proportion. However I might send you many interesting things, if there were an opportunity to send them direct from here to the Fatherland; many new plants as well, for much is far from being known and described as yet. Among the thick-leaved *Euphorbia* and *Crassula* for instance, I come across many species that are undoubtedly not known yet; but what is the use of finding something I should like to send you, for who would undertake the cultivation of those plants and keep them till an opportunity offers itself to send them off? Certainly nobody would lend himself to this. Besides, the transplantation of many specimens is almost impossible in this dry and hot time of the year. God grant, that both of us may live to see that within a few years on my home-voyage, I shall be allowed to call at the Cape once more in a more favourable season, then I shall certainly be able to bring home a wealth of the most beautiful products of the vegetable kingdom of these regions, for the embellishment of your *Plantlust* and perhaps of a plot of my own and at any rate for the furtherance of our interests. And you will be able to instruct me, that I may do so with the greatest possible success. I fear, however, that the ships sailing from and to the East Indies, will more and more avoid the Cape and rather call at Rio de Janeiro or elsewhere, for it is generally considered that there is no place in the world where everything is so expensive as here. England is nothing compared to this. But even during my present stay here an opportunity may present itself, to have some plants, especially *Succulents*, dispatched to you, for I have been told about some plant-lovers and gardens and estates that I am still to visit.

But of course one is pressed, and does not want to stay long with so many people in such an expensive place."

Since the remaining part of REINWARDT's first letter from the Cape contains only one or two items that might interest our readers, we will confine ourselves to the publication of one more passage of interest in connection with South African botany.

After having complained of the high postage, REINWARDT continues:

<sup>2</sup>We may add to this that a book by HAWORTH is meant here, and undoubtedly his "Synopsis Plantarum Succulentarum", London, 1812.

<sup>3</sup>The Prince of SALM-REIFFERSCHEID-DYCK, a well-known collector of succulent plants and author of the standard work "Monographia generum Aloes et Mesembrianthem. Bonn, 1836-1863.



"I received from you the first part of THUNBERG'S *Prodromus flor. Capensis*, but the 2nd part is missing. How strange that there should be no better flora of a region so marvellously rich in plants."

## SECOND LETTER FROM THE CAPE.

Dated February 4th, 1816.

A very long and valuable letter containing among other things a more detailed and even more enthusiastic account of the Cape vegetation and scenery.

We have taken over for publication in this Journal almost the entire letter, only a small part of its contents being of less interest.

REINWARDT writes:

"The part of the Country I have visited offers a great variety of plants which delighted us ever so much; we have come across beautiful scenery of which I had some sketches made by the draughtsman BIK, and which we will enjoy often when I shall be home again.

Although the great plains between the mountains are either barren sands, or show a rocky surface, the soil is hardly ever so infertile that even in this dry and hot season it is not more or less covered with plants; the great variety of *Ericae* and *Proteae*, forming a display of the most beautiful flowers, has particularly delighted me. But the most profuse vegetation is to be found at the bottom of and between the gorges where the soil is continually moistened by the water flowing down. They were my favourite spots, most important for a botanist, those dark gorges covered with impenetrable forests of wild trees, such as *Cunonia capensis*, *Olea capensis*, *Brabejum stellatifolium*, *Curtisia faginea*, *Podaliria capensis*, *Grewia occidentalis*, etc., filices arborescentes, overgrown with . . . . . ? [an undecipherable name of two syllables, that might be read as *Vitis*, M.K.], *Spielmannia*, *Cassyta filifera* which wind through the trees and greatly hamper penetrating into the forest. At the same time the path is blocked by boulders of granite or sandstone that have come down from the rocks. Though I had to leave many of these spots sooner than I liked to, because I often had to consider my companions whose desire of knowledge was not so keen or who had finished examining those (botanical) treasures sooner than I, I managed to dry flowering branches of a great number of plants, which will revive and render more agreeable the memory of what we have seen. But what I regret most is, that I cannot share all this with you and that I have not been able to

collect for you as well. It would give me the greatest satisfaction, if some day after my return to Europe, I could find a reminiscence of all this in some plants safely transplanted in your garden where they will grow and thrive. But very unfortunately there is no opportunity for that at present. So I must confine myself chiefly to the wish that I may come here again on my return from the East Indies and stay here for a longer time in a season more favourable for the collection of living plants, and that by that time I shall be better informed as to the specimens you want from here. As for the bulbous plants, most of them are not flowering just now, but in the rainy season the veld must be covered with the greatest possible variety, as I have been told. My trip has not been very successful from a zoological point of view, we have only collected some Insects, a few Birds, a Hyrax [a small mammal, M.K.] which I skeletonized, and one or two Lizards. Nor did the environs of Capetown yield any minerals, they are all sandstone or granite which juts out in large outcrops on the slopes of the mountains. I have not climbed Table Mountain. My trips into the country have prevented me, as well as the weather conditions which were often unfavourable for that purpose, especially because of the strong south-east wind which blows now nearly every day and covers the summit of Table Mountain with cold and wet black clouds. Sometimes this wind is so violent, that I can hardly give you a good idea of it. Returning home the other day from a dinner at Newlands, the country-seat of the Governor of this Colony, Lord SOMERSET, the wind was once more raging so fiercely that we could keep ourselves upright in an open chaise only with difficulty, and there was not a cart loaded with timber or hay in the road that was not overthrown; this even happened with a carriage in which General ANTING and his family found themselves. Fortunately they got off with a fright only. Although I keep my room well closed, everything is covered with dust and sand that penetrates through the finest crevices. This alone would be enough to retain me from taking my residence here. Of the few men of letters who I have met here, I was particularly pleased to make the acquaintance of Mr. HESSE, the Lutheran Minister, and Mr. POLEMAN, because both of them have a fairly good knowledge of Natural History, the latter of Chemistry as well. By these and by another gentleman, who occupies himself with collecting and selling of Natural objects, I hope, during my stay in the Indies, to have the most curious specimens of this Colony collected for you by the time of my return home, or to have a collection of Succulentae and other living plants sent to you, whenever an opportunity presents itself by a homeward



bound ship. Unfortunately they have no gardens where they might keep the plants till the time of their dispatch. Both these Gentlemen have also been of use to Mr. LICHTENSTEIN.<sup>4</sup> HESSE has sent many an important object to BLUMENBACH. The third man, however, charges exceedingly much: for the head of Hippopotamus he asks 200 Ryksd. and other things in proportion. It will be better to exchange things with him from the East Indies. I have found growing wild only a few *Aloes*, viz. the *plicatilis* and *ferox*(?) in a place that impressed me by its beautiful scenery, namely at the curious Drakenstein fall. The former species grows here in the gardens into very high trees. Most species of this genus grow far from here in the interior districts in the Carroo-fields, and I daily regret that I can be of so little use to you with regard to a genus of plants for which you have such a special liking and which stands so central in your studies. I will try to let you have by the first opportunity some other species which Mr. HESSE grows in his little garden and which I think will interest you and the Count [Salm Dyck, Transl.] Mr. H. has promised me these. The following species are in his possession, as far as I have been able to identify them hurriedly in the garden itself with the help of HAWORTH.<sup>5</sup>

1. *A. plicatilis*. — 2. *flavispina*. — 3. *A. mitraeformis*. 4. *A. arborescens*. This is certainly the *Aloe* which in France goes by the name "*A. à corne de bœlier*". — 5. *A. ferox*. Of this species Mr. HESSE has a very big, broadly developed specimen. — 6. *A. succotrina*. — 7. *A. rhodacantha*, a handsome species. — 8. *A. latifolia*. — 9. Seems to me a new species, which I did certainly not see among your collection. It is a very handsome species, which I have consequently named *A. callophylla*. This species is, in my opinion, quite distinct by its smooth entire leaves without any teeth (on their surface) or at the margins; the broad, horny transparent margin of a fine red colour, and the sharp red keel under the apex of the leaves. Its habitat is in the Utenhage district, a distant part of the Colony. — 10. *A. carinata*. — 11. *A. glabra*. — 12. *A. pulchra*? *folia acuta*, *atro-viridia*, *maculis distinctis et confluentibus carneis*, *folia subspiralia*. — 13. *A. Lingua*. — 14. *A. depressa minor*. — 15. *A. depressa*. — 16. *A. (Apicra) nitida*. This species seems to me to be unknown and con-

sequently new. It was taken along from the interior of the Colony by a certain BURSHELL [sic], who has been travelling for three years all over the Colony to collect Natural objects only, and who recently returned to England with 40 kilograms of objects. — I will pass over some smaller species which are represented in your collection, like *humilis*, *spiralis*(?), *viscosa*, *margaritifera*, etc.<sup>6</sup>

Since I was not always certain whether the identification of the above-mentioned species was correct, and I only had the books of HAWORTH and WILLDENOW<sup>7</sup> at hand, I have added the characters by which they distinguish themselves according to me, in order that you may judge for yourself, whether my identification is correct.

I already saw to it, that you will receive with the same opportunity with which those new species will be sent to you, some other plants which are of interest, though already more or less known, like *Strelitzia regina*, *Str. alba* and *Str. teretifolia*, *Tamus elephantipes*, etc., which are grown here outdoors, and also some fine *Cotyledons*, etc.

Sending all this must wait, however, until there will be a ship sailing from Batavia to Holland via the Cape, so that I can only prepare the shipment now and later on by letter to HESSE and other Gentlemen here."

### THIRD LETTER FROM THE CAPE.

Dated February 7, 1816.

A short note, from whose contents we quote the following:—

"I enclose some seeds which have been partly collected by myself, partly by KENT; but I cannot vouch for the names being correct, for I have not been able to determine all of these plants. But all the seeds are fresh and of handsome plants. I have added some bulbs as well."

N.B.—In connection with REINWARDT's second letter from the Cape it is interesting to know that HESSE really sent some plants to VAN MARUM. In February 1817 a little box containing some *Aloes*, *Cotyledon*, *Stapelia*, *Euphorbia* and *Crassula*, was sent off with the ship "De Ondernemer" (Capt. Leeloz) and arrived safely in October 1817.

<sup>4</sup>H. LICHTENSTEIN, a German who had been travelling the Cape Colony and other parts of Southern Africa in that time. His impressions of travel are filed in his book: "Reisen im südlichen Afrika," 2 Vols. Berlin, 1812.

<sup>5</sup>With the exception of that of a doubtful species, we have omitted the short Latin diagnoses REINWARDT gives of most of these species; his handwriting being not excessively clear, we could but partly decipher these diagnoses.

<sup>6</sup>Two of these species, *A. viscosa* and *A. margaritifera*, have been separated from the genus *Aloe* afterwards and were placed under the genus *Haworthia*.

<sup>7</sup>We do not know which book of C. L. WILLDENOW was used by REINWARDT.

# Notes on Recent Publications.

**L**t. Colonel C. H. Grey, the owner of the well-known Hocker Edge Gardens, and an enthusiastic grower of plants rare and unusual in England, is writing a comprehensive work in three volumes entitled "Hardy Bulbs." The first volume, dealing with the Iridaceae, has just been published (London, Williams and Norgate, 1937, pp. xxvi + 403, 32 pl. in bl & wh., 15 pl. in colour, 36/- nett). The Iridaceae are so largely represented in South Africa that this volume is of exceptional interest here: in fact, except for *Crocus* and *Iris* and a few smaller genera, the book is almost entirely South African (and especially Cape) in scope. It is however written from the point of view of an English gardener with an eye to the successful introduction and cultivation of these lovely subjects in conditions very unlike those in which they occur naturally.

The success achieved by Colonel Grey and others in growing Cape plants which have proved difficult in South Africa is a cause of admiration mingled with exasperation. Absence of our pests probably explains much, but the skill and devotion of the English grower as compared with the nonchalance (not to say rank indifference) of his South African cousin certainly accounts for most of the successes. Flowers, like prophets, are not without honour save in their own country. We talk endlessly about loving our native flora, but we do not show much desire to cultivate it beyond digging it up and letting it perish in our gardens through forgetfulness and carelessness. A book like Colonel Grey's should have a salutary effect upon us by showing how much plant lovers in other countries prize and treasure the very wild flowers we are so casual about.

This first volume of "Hardy Bulbs" is a storehouse of knowledge about Irids, and collects in convenient and attractive form an enormous amount of scattered information, valuable to botanist and gardener, and an incentive to future work and study. The numerous plates, the work of Mrs. Grey, are drawn in outline and either shaded in black or washed in colour, or both, and many of them have a distinctive character with greatly enhances the charm and interest of the book.

Volume II will deal with the Amaryllidaceae, Commelinaceae, Haemodoraceae, Orchidaceae and Scitamineae, and will be slightly smaller than the present volume: Volume III will be larger and will treat of the Liliaceae only. Both will be eagerly anticipated in view of the admirable qualities of Volume I.

\* \* \* \* \*

From America too comes a reminder of the esteem with which South African plants are regarded. Mrs. Sarah V. Coombs, who spent several months in South Africa, living for much of the time in the Hostel at Kirstenbosch, has written a book entitled "South African Plants for American Gardens" (New York, F. A. Stokes Co. 1936. pp. xvi + 364, 17 illust. in colour, 73 in bl. and wh. \$4.50). Although naturally not so detailed as Colonel Grey's book on the one family Iridaceae, this handbook gives a general view of the flora which will serve to impress the gardener-reader with its variety and charm, and will give him a guide as to choosing subjects for his collection and as to the methods of cultivating them. The book begins with a description of Kirstenbosch, and indeed it might be used as a handbook to the Kirstenbosch collections. In America it is California which provides the nearest parallels to the climates of the Cape, including the arid and semi-desert tracts of the Karoo which are rather closely imitated by the inland plains and southern districts of that state: and in fact it is in California that our plants adapt themselves most readily. In the east of America a few of our annuals are grown in the open air, and many others find a place in the shelter of glasshouses, such as those at the New York Botanic Garden: and it is at that great institution that Mrs. Coombs has worked up and supplemented the information obtained in South Africa. The descriptions of the plants are brief but adequate. Special favour is shown to the succulents which are extremely popular in America with their adaptability to urban conditions. The illustrations are all photographic, some from autochrome plates, some in monochrome, and are an attractive feature of the book. Mrs. Coombs thanks many in South Africa for help and courtesy: we on our part are grateful to her for producing so charming and useful a memento of her visit.

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The most noteworthy contribution to the study of South African plants during 1937 was undoubtedly the magnificent monograph on the Stapeliaceae by Alain White and Boyd L. Sloane (Los Angeles, Abbey San Encino Press. Sold by C. Luckhoff, Cape Town, \$12.50. Three volumes pp. xvi + 1186 + Index. 1,233 figs. 39 coloured plates. 1 map and distribution chart). It is quite impossible to do justice to this remarkable work in a short notice. The first edition, published in one volume, was reviewed in this Journal, 1934 p.30, and was itself a fine achievement.

In this second edition the authors have added a vast amount of new material and innumerable photographs and other illustrations of excellent quality, and the work has grown to six times its original size. Every known species is described, localised as far as possible and fully annotated; and almost every one is illustrated, often with several photographs and drawings. In addition to the detailed systematic presentation of the group, the authors have included a large amount of collateral material. There is a most interesting series of biographical notes on those who have collected or studied the Stapelieae, chapters on Justus Heurnius, Witsen and Hermann, Guaaps as Food and Medicine (quoted from N. S. Pillans) the subdivision of Caralluma and Stapelia (quoted from N. E. Brown), an interesting account of Stapelia hunting in the Richtersveld (by H.

Herre), a list of South African vernacular names (by D. Pringle), and of Indian names of Carallumas, an excellent chapter on the culture of Stapelieae, a glossary, and a suggestive collection of addenda. The distribution maps and diagram are of great interest from the standpoints of geographical distribution and evolution. The coloured plates are largely from Miss Cythna Letty's paintings, and a very large number of collaborators have furnished photographs of these very photographable plants. The whole work is a monument of enthusiasm and hard work and is worthy of its exceptional subject: it is a real pleasure to read it or merely to turn over the pages, and no monograph could be less dry-as-dust. The authors, astonishing to relate, contemplate producing a third addition and would welcome material for it!



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# The Botanical Society of South Africa.

## ANNUAL REPORT, 1936.

In presenting this, the Twenty-third Annual Report of the Proceedings of the Society, it is with pleasure that the Council has to record a year of increased activity in many directions. The Membership, which now stands at the record figure of 1916, is as follows:—

|                             |       |
|-----------------------------|-------|
| Life Members . . . . .      | 83    |
| Family Members . . . . .    | 108   |
| Ordinary Members . . . . .  | 1,042 |
| Associate Members . . . . . | 683   |

1916

This is an increase of exactly 500 more than the number three years ago. The increase is very gratifying, and shows that the Society meets a real need in our midst.

The amount paid over to Kirstenbosch has also reached the record figure of £1,023 10s. 8d. This is the nett amount received by the Society after deducting working expenses.

During the year your Council supported the Wild Flower Protection Conference Committee in its endeavours to obtain, through legislation, further protection of wild flowers. It is gratifying to note that a draft ordinance with this object in view will be placed before the Provincial Council during the ensuing Session.

The Society notes with great satisfaction that the Forest Department is following the policy advocated for many years by the Society for the creation of Nature Reserves and the protection of the indigenous flora, not only for its own sake but also for its value in water conservation, the

prevention of soil erosion, and in preserving the natural scenic beauty of the country.

The work of creating these reserves is being proceeded with, as opportunity offers, in different parts of the Union. As will have been noticed in the Press, some 30,000 morgen of mountain ground in the George and Mossel Bay Districts have been acquired by Government, and a considerable area has also been set apart in the Cedarberg Mountains.

A Wild Flower Show, held in the City Hall during September last, by the Cape Horticultural Society, was highly successful, although the proceeds did not reach the amount realised at the show held the year previously. The nett sum received for distribution between Kirstenbosch and Whitehill was £65. This was very much appreciated, and the thanks of the Society are due to the Cape Horticultural Society for its valuable and timely assistance in this regard.

Mr. J. W. Mathews, who was appointed Curator when the National Botanic Gardens were first started, some twenty-four years ago, retired during the year. It is largely due to his energy, skill and experience that Kirstenbosch has reached its present state of development. In April last the Society met at Kirstenbosch to bid him and Mrs. Mathews farewell. A large number of members attended, and the President, Sir James Rose-Innes, presented him with a cheque the substantial amount of which expressed very eloquently the esteem in which he and Mrs. Mathews were held. It is with regret that the death of Mrs. Mathews shortly after her husband's retirement has to be recorded.

The Society takes a natural pride in the Succulent Garden at Kirstenbosch, as its entire cost has been financed

from the Life Members' Fund. Further funds have been placed at the disposal of the Trustees with a view to extending this rock garden, which is not only one of the most charming and instructive portions of Kirstenbosch, but is creating a great deal of attention and interest overseas. For local members this Garden is an object lesson in what can be accomplished with succulents in a winter-rainfall area, provided the correct aspect is obtained and proper care and attention is given.

JOURNAL OF THE BOTANICAL SOCIETY. — The Twenty-Second issue of the Society's Journal was published in December and issued gratis to Members and Associates. An important article by Mr. F. Guthrie on Wild Flower Protection was included. An article by Professor E. A. Walker on Van Riebeeck's Hedge of Wild Almond at Kirstenbosch (recently proclaimed as a National Monument) was reprinted with additions from the Annals of the Bolus Herbarium. Sir Arthur Hill contributed an illustrated article on the new South African Succulent House at Kew, and Mr. F. W. Thorns wrote on his first impressions of Kirstenbosch. A photograph of the late Sir Lionel Phillips formed the frontispiece, and a group taken at the Botanical Society's presentation to Mr. and Mrs. J. W. Mathews at Kirstenbosch was published.

JOURNAL OF SOUTH AFRICAN BOTANY.—The second volume (in four quarterly parts) of this scientific publication was issued from Kirstenbosch during the year, several articles of botanical and general importance being included. Members of the Botanical Society have the privilege of subscribing at reduced rates to this Journal, and many have taken the opportunity of doing so.

FINANCE.—The statement of the financial position of the Society, as shown in the Balance Sheet, reveals a very satisfactory state of affairs. The investments stand at £1,797 18s. 4d., and the amount payable to Kirstenbosch in 1937 is £1,038 1s. 7d., an increase of £14 10s. 11d. as compared with the preceding year.

MEETINGS OF THE COUNCIL.—Four meetings were held as usual during the year, and were attended by the majority of the members.

The following office-bearers were elected at the last Annual General Meeting:— *President*: W. Duncan Baxter, Esq.; *Vice-Presidents*: Miss Edith Struben and J. B. Taylor, Esq. *As Members of Council*: Lady Phillips; Dr. L. Bolus; F. E. Cartwright, Esq.; Professor R. H. Compton; A. H. Cornish Bowden, Esq.; W. A. Eaton, Esq.; P. Ross Frames, Esq.; F. A. C. Guthrie, Esq.;

Dr. Bennie Hewat; W. de N. Lucas, Esq.; F. W. Metelkamp, Esq.; Dr. H. A. Moffat; C. J. Sibbett, Esq.; H. C. Starke, Esq.; Miss E. Stephens; E. McL. Thomas, Esq.; Miss F. M. White.

PRESIDENT.—It is with great regret that the Botanical Society records the resignation of the Rt. Hon. Sir James Rose-Innes, P.C., K.C.M.G., from the office of President. Sir James was elected to the presidential chair in 1914, on the death of the first President, Baron de Villiers, and has held the position continuously until 1936. It is impossible adequately to express the deep obligation of the Society to Sir James for his devotion to the interests of the Society, and his wise guidance of its policy during this long period. Under his presidentship the Society has increased sixfold in numbers and influence, and in the extent of its assistance to the National Botanic Gardens. The Society owes much of its success and progress to him, and in thanking him for his invaluable services it feels sure that his interest in the Society's work will continue in spite of his retirement from active participation therein.

ANNUAL GATHERING.—This took place on Thursday, 17th September, and was attended by a large number of members and their friends. The gathering was, if anything, more informal than usual, and the fact that it was held in the morning, instead of in the afternoon as heretofore, was favourably commented upon by many of those present.

During the year 1936, the Gardens distributed to Members of the Botanical Society and various Institutions, 482 lots of material, comprising:— 3,875 packets of seed, 439 cuttings, 922 bulbs, and 332 plants.

The total number of contributions of Plant Material to Kirstenbosch during the year was 2,625 lots of material, comprising:— 537 packets of seed, 580 cuttings, 6,416 bulbs, and 4,610 plants and seedlings.

The number of visitors recorded as entering the gates were as follows: Saturday afternoons, 11,793; Sundays, 41,433; Public Holidays, 11,053, being a total of 64,279, making an increase as against last year for these days of 2,839. No records are kept on other days.

The Bolus Herbarium examined 750 specimens from Kirstenbosch during the year, of which 616 were identified as known species, and 34 as new species.

The Annual Report and Balance Sheets of the Gardens for 1935 were distributed to Members and Associates of the Society. The Kirstenbosch and Whitehill Seed Lists were also distributed as usual.

OBITUARY.—It is with a very keen sense of loss that the Society has to record the death of Sir Lionel Phillips, Bart., which took place in July last. It was largely due to Sir Lionel's efforts that the National Botanic Gardens at Kirstenbosch came into being. He advocated it in Parliament, was instrumental in obtaining financial assistance from Government, and was a prime mover in interesting the public in the formation of the Society. He was a Vice-President of the Society, and later was elected Chairman of the Council, which latter position he efficiently filled for many years and up to the time of his death. He will be long remembered by those who had the privilege of serving with him.

We also regret to record the death of Miss Edith Struben, who was a Vice-President of the Society, and for many years an active supporter of Kirstenbosch. She was an ardent lover of wild flowers, as was evidenced by the

beautiful garden at "Luncarty," and her charming flower paintings.

The Council also records with regret the death of Sir F. Ecksteen and Mr. Samuel Ryder.

THANKS.—The Council expresses its indebtedness to Professor Compton for his valuable assistance in having edited the Journal of the Society; to the South African Association for the use of their Board Room for meetings of Council; and to the Press for their co-operation in reporting the proceedings of the Society.

F. W. METELERKAMP,

*Chairman.*

FRANK E. CARTWRIGHT,

*Hon. Secretary and Treasurer.*



PAGE THIRTY-FOUR

# THE BOTANICAL SOCIETY OF SOUTH AFRICA.

## OBJECTS:

- (a) To encourage the inhabitants of South Africa to take an active part in the progress and development of the National Botanic Gardens at Kirstenbosch, and the Karoo Garden at Whitehill, and to induce them to appreciate their responsibilities therein.
- (b) To augment the Government grants towards developing, improving, and maintaining fully equipped botanical gardens, laboratories, experimental gardens, etc., at Kirstenbosch and Whitehill.
- (c) To organise shows at which may be displayed the results of botanical experiments or cultural skill in improving the different varieties of South African flora.
- (d) To enlighten and instruct the members on botanical subjects by means of rambles, meetings, lectures and conferences, and by the distribution of literature.

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FOUNDED JUNE 10th, 1913.

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### *President:*

W. DUNCAN BAXTER, Esq.

### *Vice-Presidents:*

J. B. TAYLOR, Esq.; LADY PHILLIPS; DR. H. G. FOURCADE.

*Chairman of Council:* F. W. METELERKAMP, Esq.

*Hon. Secretary and Treasurer:* F. E. CARTWRIGHT, Esq. (P.O. Box 267, CAPE TOWN.)

### *Council:*

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A. H. Cornish Bowden, Esq.

Professor R. H. Compton.

W. A. Eaton, Esq.

P. Ross Frames, Esq.

F. A. C. Guthrie, Esq.

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Miss E. L. Stephens.

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### *Terms of Membership:*

*Life Members*, subscribing not less than £25.

*Family Members*, subscribing not less than £2 2s. per annum.

*Ordinary Members*, subscribing not less than £1 1s. per annum.

*Associate Members*, subscribing not less than 5s. per annum.

*Associate Members* enjoy all the privileges of Membership except that they do not vote at any of the Society's Meetings. New Associate Members are residents of the Union only.

Honorary Members may be elected at a Meeting of the Society on the nomination of the Council.

All Members have the privilege of sharing in the free distribution of surplus seeds from Kirstenbosch, on application to the Director of the Gardens. The Journal of the Botanical Society, published annually, is sent free to every Member on application. The Journal of South African Botany can be purchased by Members at reduced rates.

Life, Family, and Ordinary Members may pay an additional subscription of 10s. per annum, the proceeds of which will support the Karoo Garden, Whitehill: such Members have the further privilege of receiving seeds from Whitehill as well as from Kirstenbosch.

Those wishing to become Members of the Society are invited to communicate with Mr. F. E. CARTWRIGHT, *Hon. Secretary*, P.O. Box 267, Cape Town.

# NATIONAL BOTANIC GARDENS

The Harold Pearson Memorial Hostel provides accommodation at economical rates for those who wish to undertake private work in botanical or other natural history subjects at Kirstenbosch.

The Edward Muspratt Solly Scholarship, value £100, tenable at Kirstenbosch, is awarded annually for botanical research and study.

Botanical Specimens intended for cultivation at Kirstenbosch or Whitehill may be sent free of charge by post or rail from places within the Union, South West Africa, or Southern Rhodesia.

The *Journal of South African Botany* is a scientific periodical published at Kirstenbosch. The annual volume (issued in quarterly parts) consists of about 200 pages of text, and is copiously illustrated with plates and figures. Annual subscription, 20/-; single parts, 6/6. (To Members of the Botanical Society, 15/- and 5/- respectively.)

Enquiries on the above or other subjects connected with the National Botanic Gardens should be addressed to the Director, Kirstenbosch, Newlands, C.P.

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## CHRONICA · BOTANICA

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From February 1938 *Chronica Botanica* will be issued *bi-monthly* and no longer as a year-book. The annual subscription will be reduced from 15 to 7 guilders. The new periodical will continue to give all the essential information which was given in the old year-book, and will include some important new sections as well. Like the year-book, the new *Chronica* will aim at promoting documentation, goodwill, and international co-operation among plant scientists. Results of research will be published only in the first two sections. The world list of plant science institutions and societies will appear as an annual supplement. The contents of the re-organized *Chronica* will be as follows:

- |                                      |                                      |
|--------------------------------------|--------------------------------------|
| 1. <i>Scientific Communications.</i> | 6. <i>Herbarium and Museum News.</i> |
| 2. <i>Forum Botanicorum.</i>         | 7. <i>Personalia.</i>                |
| 3. <i>International Congresses.</i>  | 8. <i>Queries.</i>                   |
| 4. <i>Quotations.</i>                | 9. <i>New Periodicals.</i>           |
| 5. <i>Miscellaneous news.</i>        | 10. <i>New Books.</i>                |



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NATIONAL BOTANIC GARDENS

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**Part XXIV. 1938**

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Mrs. Bolus has done her work well and faithfully. All the reward she seeks is a better appreciation of our wealth of flowers and their preservation.—*Cape Times*.

This is a book that should certainly be in the hands of every teacher of botany, biology and nature study and is well worthy of a place in the library of every nature lover.—*The Education Gazette*.

The matter of this volume has been arranged in botanical sequence, and is liberally illustrated by coloured plates and photographs, including illustrations in colour of "Stapelia" and some of its allies, "feeling," says Mrs. Bolus, "that any work dealing with our native flora would be sadly defective if some representation of so important a constituent as the succulents were not included."

Each specimen is dealt with in an exhaustive and readable manner, and the illustrations (paintings by D. Barclay and photographs by E. J. Steer) are exquisitely reproduced. The colour studies in particular enhance the publication a hundred-fold, being artistic and natural in the extreme. This book is a necessary addition to any library, and particularly to that of a lover of flowers.—*Pretoria News*.

In its text it is a worthy companion to the first book, which came out eight years ago. In its illustrations it is a finer fellow. Miss D. Barclay has contributed more of her true-to-the-veld water colourings than appear in the first volume. The photographs are again the work of Mr. E. J. Steer.

Flowers are described according to the families to which they belong, and in language stripped of obscure words. And Mrs. Bolus tells the country rambler the very things he wants to know about a flower he finds on veld or mountain — its common name, its botanical name and who first noted and named it, why it grows in some localities and not in others.

Anyone who reads it will not pick a wild flower from its natural haunt, but will feel inspired to walk miles to meet it at home.—*Cape Argus*.

This publication fills a real want especially as its predecessor, "A First Book of South African Flowers" has been out of print for some time. It is issued under the auspices of the Wild Flower Protection Society and is dedicated appropriately to the memory of Sir Lionel Phillips.

There's no need to hand out any praise here because the names of the collaborators are a warrant of quality. But the Specialty Press should be congratulated, I think, on the way they have done their part of the work, on the reproductions of the paintings and photographs, and the delightful general get-up.—*Broadcast Review*.

THE SPECIALTY PRESS OF S.A., LTD., BOX 21, WYNBERG







KIRSTENBOSCH.

*Photo: J. P. de Smidt.  
Coloured by S. W. Twine.*



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# The Journal of the Botanical Society of South Africa.

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EDITED BY R. H. COMPTON.

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PART XXIV

1938

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# News and Notes.

THE Silver Jubilee of the National Botanic Gardens and of the Botanical Society was celebrated at the beginning of September. The Society held its annual "At Home" for Members and their friends at Kirstenbosch, about 600 being present: the speeches by the Chairman of the Council (Mr. F. W. Metelerkamp), the Director of the Gardens (Professor R. H. Compton), and the Minister of Justice (General the Rt. Hon. J. C. Smuts) are reported on a later page, and a photograph of the gathering is reproduced as Plate II.

The Mayor of Cape Town (Mr. W. C. Foster), who is *ex officio* a member of the Board of Trustees of the Gardens, gave an official Banquet at the Muizenberg Pavilion in honour of the occasion. Their Excellencies the Governor-General and Lady Duncan were present as well as many distinguished guests; the Gardens were represented by the Trustees and Staff, and the Botanical Society by its Council and officers. Speeches made by His Excellency the Governor-General, Mr. W. Duncan Baxter, the Hon. R. Stuttaford, Mr. F. W. Metelerkamp, and Dr. H. J. Lam are recorded in this Journal.

Other members of the Gardens personnel also celebrated the anniversary. The coloured workmen were entertained to supper in Protea Village, and their families were given a party in the paddock at the Gardens: the natives received a present of tobacco.

The Gardens and Society also received a good deal of publicity during the celebrations in other ways. Illustrated articles were published in the *Cape Times*, *Cape Argus*, *Die Huisgenoot* and other newspapers. Two broadcasts were given from Cape Town, and a school broadcast from Cape Town and Grahamstown. A film by "African Mirror" was shown all over the Union, and "Kirstenbosch Sunday" was announced by slides in the Peninsula Bioscopes.

Another feature of the celebrations was an Essay and Poster Competition for school children. A large number of entries were received, among the posters being several of high standard. About 200 scholars representing the schools which send nature study classes to Kirstenbosch were entertained to tea in the

old Herbarium building, where the prizes were distributed and the posters were displayed.

This programme of celebrations was carried through by the co-operation of a large number of people, members of the Gardens staff, officers of the Botanical Society, and many others. Sincere thanks are rendered to all who so generously gave their time and energy and made a success of this memorable event in the history of the Gardens and Society.

We have published from year to year figures showing the membership of the Society. This year a diagram is given (page 3) showing the progress of the Society since 1914. The different classes of membership and the totals are represented by separate curves; years are shown on the horizontal scale and numbers on the vertical scale. The progress of the Society can thus be seen at a glance. An analysis of the graphs would be interesting—the membership has trended upwards all the time, but increases have taken place in a series of steps, corresponding to periods of special activity on the part of the Society.

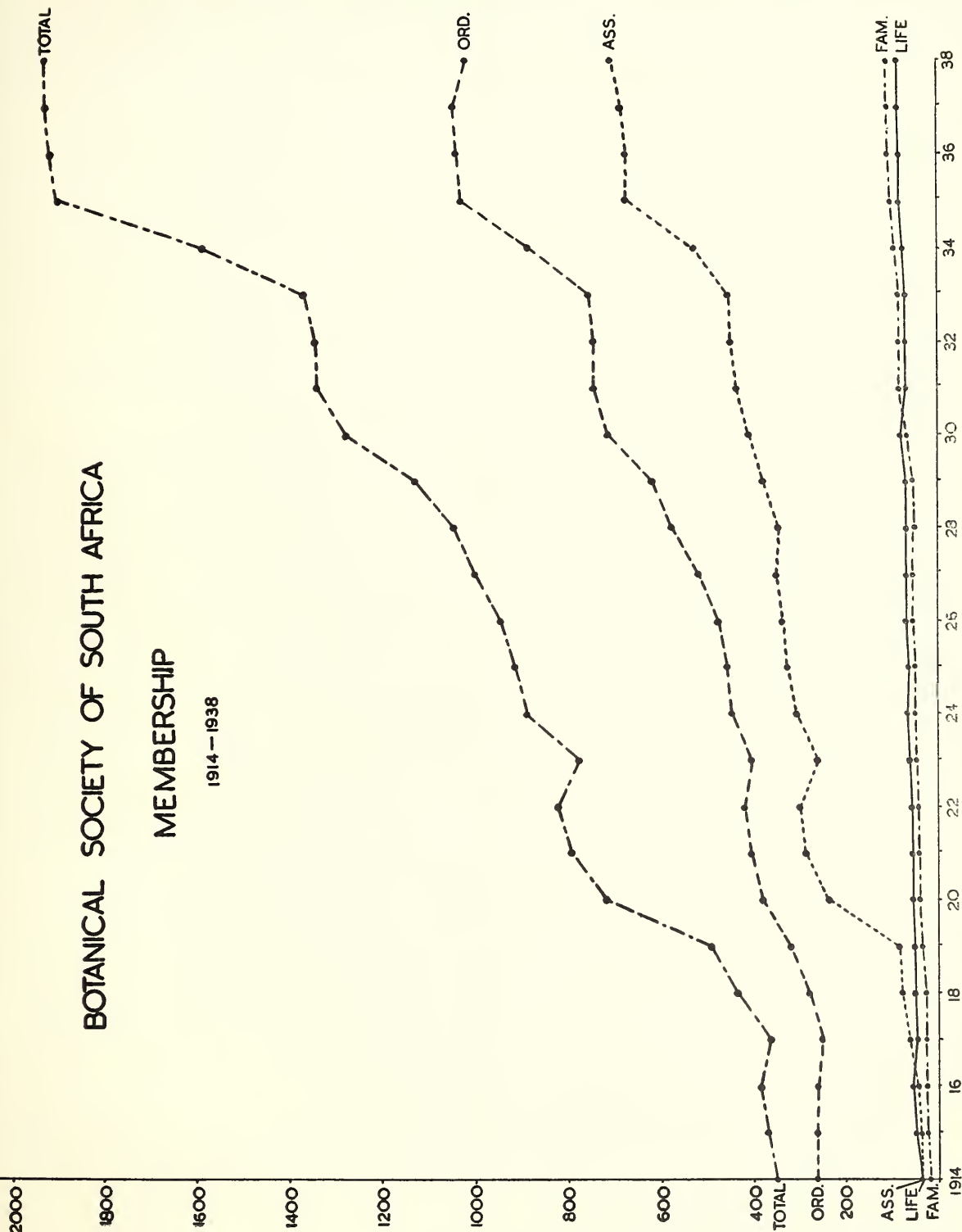
Another such step is now due, and the beginning of the second quarter-century of the Society's history should be the occasion of another steep upward movement in the curves of membership. Members of the Society can influence their friends to join: every increase of membership means more power for the Society, more privileges for its Members, and, most important of all, more support for the National Botanic Gardens and the ideas and ideals they stand for.

The Council of the Botanical Society during the past year has seriously discussed the question of formally adopting the preservation of the native vegetation as one of its objects. The Society has, of course, always taken a keen interest in matters of wild flower protection, though this has been strictly *ultra vires*. At the urgent request of the Wild Flower Protection Conference Committee the Council has now drafted certain changes in its constitution to enable the Society to undertake this additional work. The proposals will be put before a special general meeting of the Society in December; and if the decision is

# BOTANICAL SOCIETY OF SOUTH AFRICA

## MEMBERSHIP

1914-1938





favourable the necessary alterations will be made in the Society's prospectus.

\* \* \* \* \*

The book on "Cultivation of South African Plants," written by Mr. J. W. Mathews, formerly Curator of Kirstenbosch, has now been published under the auspices of the Botanical Society. Each Member of the Society will receive a copy of the book gratis, so long as the supply lasts.

The book gives a compendious account of our non-succulent flora from the gardening point of view, and embodies Mr. Mathews' long experience at Kirstenbosch. It will be of great value to those who like to grow indigenous plants and who are interested in extending their acquaintance with them; and it will be very useful in conjunction with the seed-lists issued from the Gardens to Members of the Society.

Additional copies of the book can be purchased from the Speciality Press, Box 21, Wynberg, C.P.

\* \* \* \* \*

Another book which has taken its origin at Kirstenbosch is Miss Letitia Starke's "Nature Study Course for the Primary School."

With regard to this, Miss Muriel Johns, who succeeded Miss Starke as teacher of nature study at Kirstenbosch, writes as follows:—

"The Cinderella of school subjects, Nature Study, is slowly but surely coming into its own. With the valuable contribution of Miss L. M. Starke, M.A., in her book 'A Nature Study Course for the Primary School—A Hand Book for Teachers' (published by Juta & Co., Cape Town, price 4s. 6d.) Nature Study teachers in South Africa have a real asset.

"The natural reaction, I think, of most teachers after looking at the chapter headings will be to turn to Chapter III first—'A Scheme for the Six Years of the Primary School.' Some will want to follow it slavishly, others will use it as a guide, and if used wisely it will prove a most entertaining study for the children, for then they will get a comprehensive outline of science, its developments and its relation to daily life.

"The first two chapters, though short, are vitally important, and every teacher should read and digest them carefully, for most clearly and concisely the aims and content of the Primary School are outlined as well as the principles to be taught.

"The greater part of the book deals with the first three years of work in the Primary School and a careful survey shows that nothing of importance has

been omitted. Miss Starke has again given of her very best and knows what can be done in a classroom, because after nine years of experience in field Nature Study at Kirstenbosch she spent three years teaching the subject in a school.

"For those unable to have the opportunity of as much field work, an excellent list of books has been compiled for the children's reading and the teacher's reference.

"A suggested scheme for the three upper standards of the Primary School has been outlined and is most interesting, and though it presupposes a wide scientific knowledge the keen teacher will not be afraid of the challenge.

"The price is within the reach of every teacher and the book will prove a most valued addition to any school library."

\* \* \* \* \*

Botanical Science has recently lost one of its leaders in South Africa by the death of Dr. J. W. Bews, M.A., D.Sc. Dr. Bews, who was born in the Orkney Islands in 1884, became Professor of Botany at Natal University College, Pietermaritzburg, in 1910, a post which he held (with two years' absence as Professor of Botany at Durham University) until his death. He became Principal of the College in 1930. His activities as teacher, investigator and author were numerous and important. His published botanical books include the "Flora of Natal and Zululand," the valuable and suggestive "Plant Forms," "The Ecological Evolution of the Angiosperms," and "The World's Grasses": and in recent years he turned his attention to more general problems and published his "Human Ecology" and "Life as a Whole." In addition he was the author of many shorter works and inspired many contributions to South African botany on the part of his students and others.

Bews was a man of wide knowledge and sound judgment, and played a considerable part in research and educational activities in this country. He was Chairman of the Commission appointed by the Department of the Interior in 1935 to report on the National Botanic Gardens, and we are grateful for the broad-minded and sympathetic support which he gave on that occasion and for the advice which is embodied in the Report.

\* \* \* \* \*

The recent death of Dr. T. R. Sim terminates a long lifetime of hard work in the botany, horticulture and forestry of Southern Africa. He was born in Scotland in 1856 and came to this country in 1889

as Curator of the Kingwilliamstown Botanic Garden. After three years he joined the Cape Forest Department and in 1902 he became Conservator of Forests in Natal. During the next seven years he published "The Forests and Forest Flora of the Cape of Good Hope," a book of remarkable usefulness, and "The Forest Flora and Forest Resources of Portuguese East Africa." In 1909 he went into business in Maritzburg as nurseryman and forestry expert, and lived there until his retirement and a long period of failing health. During this time he published two further books on forestry—his "Tree-planting in South Africa" and his "Native Timbers of South Africa." Other publications include the handy little volume on "Flowering Trees and Shrubs for Cultivation in South Africa," and "Tree Planting in Natal."

Sims' work was not confined to trees. His book on "The Ferns of South Africa" is the only comprehensive study of the subject. Most remarkable of all is his large monograph on "The Bryophyta of South Africa," a monument of energy and persistence in spite of formidable difficulties. A characteristic of his published work, whether on trees, ferns, or mosses and liverworts, is the copious line illustrations from his own hand.

He was a pioneer, exploring difficult and almost untrodden ways, and so successful and useful are his achievements that it will be many long years before they are superseded—by new works for which he provided the foundations.

The Edmund Muspratt Solly Scholarship for 1939 has been awarded to Miss Pauline Bond, B.Sc., who graduated with first-class honours in botany at Rhodes University College, Grahamstown, in 1937. Miss Bond will study herbarium methods and do work in systematic botany at Kirstenbosch.

The Gardens will distribute their Seed List (Kirstenbosch and Whitehill) to Members of the Botanical Society with this Journal. Members are again asked to note that it is impossible for the Gardens to undertake to send out plants or bulbs, and it is hoped that they will confine their requests to seeds. They are also asked to send in their list of desiderata by letter as soon as possible after receipt of the Seed List. The making up and despatch of parcels occupies much time on the part of the Gardens' staff, and it is an advantage to have this work condensed into a few weeks rather than spread throughout the year. More-

over, early applicants are the most likely to obtain the seeds they want before supplies are exhausted.

The Cape Provincial Ordinance for the Protection of Wild Flowers (No. 15 of 1937) bore hardly on nurserymen, who found that it was illegal to sell protected wild flowers even if they had been cultivated. The Botanical Society made representations to the Administrator's Department on this matter, and an amending Ordinance (No. 3 of 1938) has now been passed, and will shortly be promulgated with regulations: this provides for the registration of nurserymen and makes it possible for them, with certain safeguards, to sell cultivated wild flowers of protected species. This policy was recommended by the Botanical Society some years ago, its object being to encourage the cultivation of the native flora while discouraging its plucking and sale from the wild state.

The new Wild Flower Protection regulations in the Cape Province have already made a considerable difference as regards sale in Cape Town. The flower-sellers in Adderley Street offer very few wild flowers now, but the display is more colourful than before owing to the increased number of garden flowers exhibited: this is all to the good, as representing a change over from the predatory occupation of wild flower gathering to the praiseworthy one of gardening. Some hawking of wild flowers still goes on, and in particular the public have not yet succeeded in putting a stop to the roadside peddling that takes place in such places as Bains Kloof, Sir Lowry's Pass, and so on. But it takes a little time to effect a change, and there are certainly improvements on the previous state of affairs. If the Police Department would provide a motor-cycle officer to patrol the roads in the Western Province there would be a great diminution in the offences which take place—offences both of plucking and of selling, committed both by Europeans and non-Europeans.

The Belfry commemorating the work for Kirstenbosch of Sir Lionel Phillips was unveiled by Sir James Rose-Innes on April 26th, 1938. The bell and belfry were presented by Lady Phillips, the plans being drawn by Mr. Gwelo Goodman. The bell is now rung regularly for timekeeping purposes, and it will also serve as an alarm in case of fire. The whole lay-out at the new main gates is dignified and distinctive.



# Kirstenbosch.

(Broadcast by R. H. Compton from Cape Town, 9th September, 1938.)

IT is twenty-five years since the foundation of the National Botanic Gardens of South Africa, better known as Kirstenbosch, and this week those connected with the Gardens are celebrating this Silver Jubilee as a landmark in their history. It is a suitable moment to consider what Kirstenbosch is, how it came into existence, what it has accomplished, and what it looks forward to doing in the future.

Long before Europeans came to the Cape primitive man roamed, hunted and dug in what is Kirstenbosch to-day: on the slopes we can find traces of him in the shape of large pear-shaped stone implements, unmistakably fashioned by human hands, but for what purpose can only be guessed. Later came the Bushman races, and these also left their remains—the round perforated stones with which they weighted their pointed digging sticks.

In the seventeenth century the Europeans arrived. Van Riebeeck chose for his farm the land adjoining Kirstenbosch, which later became Bishopscourt. He endeavoured to fix the boundary of the new Colony by means of a hedge: there were no Australian myrtles or pittosporums in those days, so he chose the native wild almonds, plentiful in the kloofs, and planted a continuous line of them from the vale of Kirstenbosch, along the top of Wynberg Hill and down the slopes of Kenilworth towards Claremont, continuing it by a fence to the shores of Table Bay at Salt River. This was done in 1670, and Van Riebeeck's Hedge still flourishes in Kirstenbosch and Bishopscourt, the oldest living relic of the first European settlement.

In the early days of the Colony, and in fact for two centuries before oaks, pines and gums were introduced, the settlers depended on the natural forests for their timber: on the eastern slopes and kloofs of Table Mountain grew stinkwood, yellowwood, black olive and many other trees, and to this day the forests in Skeleton and Window Gorges show the work of the woodman's axe. The name of Kirstenbosch probably indicates that someone of the name of Kirsten—of which family there were many at the Cape in the eighteenth century—had the right to exploit the timber.

Of this early wood-cutting period we know very little—a few small ruins and old overgrown tracks, and curiously enough an old East India Company cannon-ball recently dug up, are all we can point to,

except of course the destruction that was done in the forests themselves.

With the English occupation a change took place. The Government officials had a fancy for holidays in the country, and two large grants of land were made at Kirstenbosch. The Colonial Secretary, Christopher Bird, built himself a country cottage at the foot of Window Gorge, planted Spanish chestnuts, and we think probably built the little oval bath to hold up the spring at the top of what is now the Fern Dell. The other country cottage was built by another Colonial Secretary, Henry Alexander, where the Tea House now stands; but we know little about it except that the bedrooms had no windows, on the principle that one retired to sleep and not to look at the view.

After Alexander's death and Bird's departure the properties were assigned in 1823 to D. G. Eksteen, and later passed by marriage into the Cloete family: in their hands it became a farm, and oaks, fruit trees and a vineyard were planted. The ruins of the homestead, which was destroyed by fire, can be seen around the present Tea House.

From the Cloete family Cecil Rhodes bought Kirstenbosch in 1895 and planted the avenue of india rubber trees, camphors and chestnuts just forty years ago.

When he died in 1902, Rhodes bequeathed Kirstenbosch to the people of the Cape as part of his great Groot Schuur estate. Then for eleven years Kirstenbosch became more and more of a jungle, hundreds of pigs grubbed for acorns, and the forerunner of the Tea House was established and served scones and coffee to those who walked up through the shady lanes and tracks of a Sunday afternoon.

In the year 1913 a new chapter opened in the history of Kirstenbosch. Pearson, the Professor of Botany at the South African College, a man of great energy and vision, realised the interest, beauty and value of the native flora of South Africa. He also realised that apart from amateur work on systematic botany, extraordinarily little was being done upon this flora: the amateur work was of very high quality and showed what a rich field was awaiting investigation. Pearson therefore launched the project of a National Botanic Garden. This was calculated to achieve several purposes. It would be a garden on a scientific



basis, where the South African flora could be studied botanically. It would aim at saving from extinction such indigenous species as were threatened by fire, cultivation, afforestation and ruthless plucking. It would be devoted to the introduction into cultivation of beautiful native plants, and thus would demonstrate their use and beauty in gardens, and put South Africa on the horticultural map once more: and it would encourage and foster a love and respect for our flora which South Africans are so apt to take for granted. And the Garden was also intended to introduce into cultivation economic plants—that is plants of direct material service to man—both native and foreign, and to give them a preliminary trial for the benefit of agriculture.

Pearson's attractive personality and enthusiasm won him many friends who exerted themselves in support of the proposal. Various sites and various systems of management were discussed.\* Eventually in 1913 the matter was brought to a head by a motion in the House of Assembly by Sir Lionel Phillips, a member for a Transvaal constituency, who proposed that Kirstenbosch should be granted by the Government as the site of the National Botanic Gardens. After a long debate the House of Assembly passed the motion unanimously, and soon after the Senate did likewise. The Government agreed, and also consented to make an annual grant towards the support of the new enterprise: at the same time making it clear that financial support from the general public would be expected.

Simultaneously with the foundation of the Gardens, therefore, the Botanical Society was established with a membership of about 300 subscribers. This Society

\*Mr. N. S. Pillans, who has been intimately connected with the establishment of both Kirstenbosch and Whitehill, has handed me the following note at my request.—R.H.C.

"This note records how and when Kirstenbosch was chosen as the site of the National Botanic Gardens.

"During January and the early part of February, 1911, Dr. Pearson was actively searching for a suitable site for the Gardens in the Cape Peninsula. He examined that part of the Groote Schuur Estate which extends from Rondebosch to Observatory, but was not satisfied with any of it. He did, however, regard as the most suitable he had seen that tract of wooded slopes situated on the south side of the Groote Schuur Zoo. When he told me of this I pointed out the many disadvantages there and persuaded him that there was a much better spot, Kirstenbosch, with

was intended to give general and financial support to Kirstenbosch.

A special board of trustees was placed in control of the Gardens: this represented the Government, the Municipality of Cape Town (which also made a grant to the funds) and the Botanical Society.

One of the original Trustees, Mr. Duncan Baxter, who was elected as representative of the Botanical Society, has been for many years Chairman of the Board and is also President of the Botanical Society. Pearson was appointed first Director, a post which he only held for three years, owing to his untimely death in 1916. J. W. Mathews was appointed Curator of the Gardens, in charge of their practical work of development and maintenance, and held the post until his retirement two years ago: the greater part of the physical development of Kirstenbosch as it exists to-day was executed by Mathews.

Not only did the Gardens suffer a severe blow at the outset by Pearson's death, but the first years of their existence were handicapped by the war and the succeeding depression. Once these dark times were over, however, Kirstenbosch began to make progress, and the framework of the Gardens began to develop out of the somewhat chaotic conditions to which poverty condemned its first few years. By framework I mean the structure of paths, walls, bridges, stormwater drainage and water supply as well as the construction of features such as the rockwork of the fern-dell, and the succulent garden; the necessary working equipment of nurseries, offices, potting-sheds, glasshouses, and so on: residential accommodation for staff and workmen; amenities for the public, such as roads, parking areas, tea house,

which he was unacquainted. He agreed to examine my proposed site. On the 10th of February, 1911, he hired a Cape cart and took the late Mr. Ridley, then Curator of the Cape Town Municipal Gardens, and myself to Kirstenbosch during the afternoon. We drove past the homestead of Bishopscoort and up the avenue of old Stone Pines. The cart was stopped on the boundary at the upper end of the avenue, Pearson alighted from the front seat, and, looking towards the mountain, exclaimed: 'This is the place.' His mind was evidently made up. The short walk towards the lower ruins and a brief discussion on the spot did not detain us for long. As far as I know, he never subsequently considered any other site for the Gardens."

N. S. PILLANS.

4th November, 1938.

picnic places, shelters, seats, and so on; and all the enormous amount of work involved in the clearing of new ground, grading or levelling it, laying it out and bringing it into cultivation.

This work of constructing the framework of the Gardens is far from complete; there are many obvious gaps and imperfections which will have to be dealt with in the next few years.

The framework of the Gardens is only a means to an end, of course, and that is the cultivation of plants, and their display and study.

Simultaneously with the growth of the Gardens lay-out they have received, propagated and planted a vast number of plants, seeds and bulbs from all over the Union. Some of these have been collected specially by the Gardens staff, but most have been sent in to Kirstenbosch by friends of the Gardens who have taken pleasure and interest in adding to our collection. Each of these contributions has been registered and labelled with its name when known and that of the contributor and the locality whence it came. The number of different specimens in the Gardens is enormous, and the work of tending and caring for them, keeping them labelled, finding suitable spots for them, propagating them for display purposes when they prove desirable and amenable to such purposes, is beyond the conception of anyone who merely grows a few easy and showy varieties in a private garden.

This cultivation is by no means an easy matter. One might think that wild flowers ought to be the simplest thing in the world to grow: nothing of the sort. The majority of ordinary everyday garden plants are things that will stand up to ordinary standardised garden practice and the attentions of what has been called the worst of garden pests — the gardener. But every wild flower needs its own special conditions and most of them do not like ordinary stock-and-petunia garden methods and die rather than submit to them. So the development of Kirstenbosch has meant continual study and experiment, trial and error — mostly error — and there are still many plants we would love to grow which defy our efforts.

One of our objects in growing plants is for display, whether of single specimens or of flowers in massed or extended formation. Our success in this respect is shown by the fact that not only does Kirstenbosch provide a very colourful spectacle in the flower season, but that at all times during the year there are sure to be objects of floral beauty to repay a visit to the Gardens. Many South African plants have been in-

troduced into gardens all over the world: and as a matter of fact some of them are now much better known in European and American gardens than in South African.

Another object of growing South African plants at Kirstenbosch is to assist in their scientific study. Systematic botanical work is a very highly technical subject calling for keen brains, knowledge and powers of observation and record. It is also a science of fundamental importance, for every piece of botanical work involves systematics in some way or other. It may be asserted that the most important function of Kirstenbosch which should be fostered in every way is its scientific work, whose results if not spectacular are of enduring value.

Kirstenbosch was expected to have an economic function. Owing, however, to the fact that it has always been very short of money for economic research, the work on plants of direct service to man has always been restricted. Nevertheless the Gardens have introduced many important plants to cultivation, and we are at present growing over two hundred varieties of plants of the most varied uses. Many of these have been tested and their value demonstrated, and material has been distributed to people interested.

And finally, Kirstenbosch (and I include the Botanical Society) is concerned with the conservation of our native vegetation. It has exerted a great and increasing influence on the public point of view. It protects the thousand or so acres under its direct control. It grows and propagates rare plants on the verge of extinction. It has stimulated and encouraged the establishment of nature reserves and of wild flower gardens in other parts of the country. It has associated itself all along with the movement for the protection of our wild flowers by education and by legislation: and it has consistently emphasised the vast importance to the country of the native vegetation in checking erosion and all its attendant evils, in ameliorating the climate, improving the scenery and making men's lives pleasanter and more profitable.

Kirstenbosch is a distinctively national South African institution and deserves the support of all who love the beautiful and interesting things which this country possesses in such profusion. The Gardens now enter upon their second quarter-century, and with them the Botanical Society. Let us hope that increasing public and private support may be given them, so that they may grow in beauty and interest, and become more and more a South African institution of which we can all be proud.



# Twenty-Fifth Anniversary

OF THE

## Foundation of the National Botanic Gardens and of the Botanical Society.

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### JUBILEE GREETINGS TO KIRSTENBOSCH.

IN the history of the collection, cultivation and systematic study of plants all over the world, Great Britain and Holland have played parts of outstanding importance. Both countries have produced navigators, explorers, collectors: both have colonised remote parts of the earth and have interested themselves in the scientific and economic aspects of the vegetation of those distant lands: both have established botanic gardens in the home country and in their overseas possessions. Leiden was one of the earliest botanic gardens to be founded, under the direction of the great Clusius in 1577, and Buitenzorg, in Java, is world-famous as a colonial botanic garden: and similarly there is the wonderful Royal Botanic Gardens at Kew, which, under the directorship of a succession of great botanists and administrators, has reached a position of unique importance, and such remarkable colonial gardens as that of Peradeniya, in Ceylon.

In South Africa we have as it were inherited an interest in the cultivation and study of plants from our two chief ancestors, and Kirstenbosch should perhaps be a Peradeniya and a Buitenzorg rolled into one! It is true that Kirstenbosch has its own distinctive character—it represents South Africa in a sense in which Buitenzorg does not represent Java or Peradeniya Ceylon: but it behoves us, in this early stage of our youth, with only a mere twenty-five years of history behind us, to recall with gratitude the vision and energy of our forbears in Europe to which we owe so much of the inspiration which has created and is developing our own National Botanic Gardens.

At this twenty-fifth anniversary of the foundation of Kirstenbosch we have received greetings, as is

most fitting, from Leiden and from Kew. Professor H. J. Lam, who is Director of the Rijks Herbarium at Leiden, has this year visited Kirstenbosch and Whitehill. Sir Arthur Hill, who is Director of the Royal Botanic Gardens, Kew, visited Kirstenbosch and Whitehill in 1930. To both we express our cordial thanks for their congratulations and good wishes.

R. H. C.

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#### SIR ARTHUR HILL'S LETTER.

"Twenty-five years have now passed since the Kirstenbosch Botanic Gardens were founded, thanks to the initiative and foresight of Harold Pearson.

"Ever since its foundation, Kirstenbosch has been in close touch with the Royal Botanic Gardens, Kew, and the friendly co-operation between our two Institutions has been very greatly to our mutual benefit. It is to be hoped that Kirstenbosch, in addition to enriching the Kew collections by sending over living materials of the unique Cape flora, may be in the near future also send over a South African student gardener to Kew for further training, and take a Kew student gardener in his place, to gain practical experience of growing South African plants in their own home. This would be on an exchange arrangement similar to that which is now in operation between Kew and Botanic Gardens and Institutions in Europe, New Zealand, the United States, etc., and so further strengthen the bond of union between the Gardens.

"Kew has been intimately connected with Kirstenbosch from the earliest days of the inception of the scheme for the foundation of a South African Botanic



Garden. Correspondence on the matter commenced twenty-eight years ago, when Prof. H. H. W. Pearson first put forward his proposals in his address, as President of Section C. of the South African Association for the Advancement of Science, in November, 1910. Many letters passed between him and Kew while the proposals were gradually taking shape. Pearson was fortunate in enlisting the sympathy and influence of several distinguished South African Horticulturists and Statesmen, among whom may be mentioned, in grateful remembrance, Lord de Villiers, Sir Lionel Phillips, Dr. Beattie, Mr. Struben, Sir Bisset Berry, Mr. Merriman, Sir Percy Fitzpatrick and many others. His indefatigable efforts were finally crowned with success and the establishment of the Kirstenbosch Gardens was effected in 1913.

"One likes to think that Pearson may have received his inspiration for this fine achievement from his period of service at Kew, working under Sir William Thiselton-Dyer, for he could not have had a more inspiring chief in matters relating to botanical enterprise for the welfare of the Empire: nor could he have realised better than at Kew, the value and importance of a Botanic Garden both for the education and interest of the general public and also as a centre for research in the domains of pure and applied botany.

"It will be remembered it was arranged for Mr. W. J. Bean, our then Assistant Curator, to pay a visit to Kirstenbosch to advise on the lay-out of the Gardens, but owing to the outbreak of war in 1914 the visit had to be abandoned. This was most unfortunate, for not only would valuable advice have resulted, but the ties between the two Institutions would thus have been further strengthened. I consider myself very fortunate in having had the privilege of spending some days at Kirstenbosch, during my visit to South Africa in 1930, and so have a first-hand knowledge of the fine work that has been done and of the difficulties that have been surmounted.

"Both the education and research sides of Kirstenbosch, inaugurated and so fully demonstrated by Pearson, have been ably continued, despite financial stress from time to time. Now the Gardens have not only come to stay, but have covered twenty-five years of fruitful existence and have fully earned the respect and admiration of Botanists and Horticulturists throughout the world.

"On the auspicious occasion of the celebration of the completion of twenty-five years of proved achievement, I beg, on behalf of the Royal Botanic Gardens,

Kew, to offer our best wishes for the continued advancement and prosperity of the Kirstenbosch Gardens."

ARTHUR W. HILL,  
*Director,*

*Royal Botanic Gardens, Kew.*

October, 1938.

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DR. H. J. LAM'S LETTER.

"Sir,—Allow me to write you a few lines regarding your wonderful Kirstenbosch, my friends and I have had the privilege to visit a few days ago. You know I am belonging to the party of Holland biologists who are visiting your country with the intention to get acquainted with biological institutes and biological work in your country. The circumstances that we have started in the Cape, has almost been too much for us. Coming from Europe, a country relatively poor in species largely owing to the influence of the glacial periods, we were utterly bewildered by the overwhelmingly rich flora of the Cape. Being a systematist and phytogeographer, this feature of your flora was, of course, theoretically known to me. Yet, it has been confirmed to me once more, one never gets the proper idea of a country by reading or by seeing pictures, one should go and see yourself. We have come and seen. Even the ordinary roadside plants, even the sparrows in the streets, were unfamiliar to us, and we would have imagined to be in another world, would we have not discovered a number of introduced plants and would we not have made friends with you and with the other Cape botanists to introduce us to your amazing flora.

"Of this flora, Kirstenbosch seems to be the very nucleus. Personally, I feel inclined to make a comparison with two other Botanic Gardens I am more intimately acquainted with, that of Buitenzorg, in Java, and that of the Leiden University in Holland. The tropical Gardens of Buitenzorg, of whose staff it was my privilege to form part for a considerable time, celebrated its 120th anniversary last year, being founded in 1817. It contains some 10,000 species of plants, mostly trees and lianas, native in the immense region of Malaysia, which is supposed to contain about 45,000 species of vascular plants.

The Leiden Botanic Gardens is much older. It is one of the oldest in Europe, being founded in 1587, and therefore more than 350 years old. As a matter of course, it is not a garden showing a display of species of its own country. On the contrary, it con-

tains some 7 or 8,000 species of mostly exotic plants, among which several, though far too few, from your country.

"And here you have, and internationally speaking, I may say, *we* have, Kirstenbosch. Methinks, Kirstenbosch decidedly surpasses Buitenzorg by its splendid situation at the eastern slopes of Devil's Peak. Of the three Botanic Gardens mentioned, Kirstenbosch is, in my opinion, the best balanced one, as it is the only one which shows a close connection to the flora of its immediate surroundings. It must be admitted that few places in the world were more fit to raise a garden like this. In no other region, I suppose, there is so tremendously rich a flora on so small an area as in the Cape. The Cape is by far the smallest, and at the same time, perhaps, relatively speaking, the richest of the six main floristic regions into which we use to subdivide the flora of the world; and the origin of its flora from old periods to the present day onward is one of the most fascinating problems yielded by Botany.

"I do not know which percentage of the native flora is enshrined in Kirstenbosch Gardens nowadays, but it is certainly intended to make it a collection as

rich as possible. I would emphasise here the great value of such a complete collection of well-labelled and properly identified plants. The Kirstenbosch Gardens, curiously enough, put in a setting of European oak trees, of Australian acacias, of Mediterranean pines and of Indian rubber trees, form a pure treasure of your native flora, the importance of which for the study of problems of taxonomy and of historical phyto-geography cannot possibly be overestimated.

"Though much too short, my visit to your Gardens has inspired me to express the above comparison. Let me, in conclusion, tender you my cordial congratulations on the 25th anniversary of Kirstenbosch, together with my hearty wishes for the future welfare and development of your Gardens as one of the most beautiful and most important Botanic Gardens of the world."

Yours sincerely,

H. J. LAM,

*Director, National Herbarium,  
Leiden, Professor of Systematic  
Botany and Plant Geography  
at the Government University,  
Leiden, Holland.*

## The Botanical Society's Annual Gathering at Kirstenbosch.

THE Annual Gathering of Members of the Botanical Society and their friends was held at Kirstenbosch on the morning of Friday, 9th September, 1938, and speeches were made by Mr. F. W. Metelerkamp, Chairman of the Council of the Botanical Society, Professor R. H. Compton, Director of the National Botanic Gardens, and General the Rt. Hon. J. C. Smuts, Minister of Justice.

**Mr. Metelerkamp** said that it was a pleasure to welcome to Kirstenbosch so large a number of Members and their friends who had come in spite of unfavourable weather. The Society had grown with the Gardens from small beginnings twenty-five years ago to its present membership of nearly 2,000 subscribers. Its need was still for more Members. New developments were afoot and it would shortly be proposed to the Society that it should formally act as the central voluntary body in all matters relating to the preservation of the South African flora.

Special reference should be made to the important educational work which was being carried out at

Kirstenbosch as a development of the Nature Study classes started by Dr. Bolus many years ago. He would ask Professor Compton to give an account of what was taking place in the Gardens and the progress that had recently been made. He was specially pleased to be able to welcome General Smuts—a man of the mountains—to the shadow of the mountain at Kirstenbosch, and to invite him to give an address.

**Professor Compton:** We are celebrating the first 25 years of the life of Kirstenbosch. At these gatherings it is my usual duty to summarise the events of the last year. I have done this regularly for the past nineteen years, and my family tells me that I always make the same speech. This is true in so far as I have always been able to report that progress has been made; sometimes the progress has been painfully slow, sometimes—as at present—it has been faster.

Kirstenbosch has an unequalled site with tremendous natural advantages. Its nearness to Cape Town, the



gateway of South Africa, is a great advantage—and conversely Cape Town is fortunate in having an institution which is national and not merely local so close at hand. Kirstenbosch has inspiring ideals, and a wonderful subject-matter, the South African flora. It has a Board of Trustees of outstanding ability in law, business and affairs. It is fortunate in its staff also—in Mr. Mathews, the first Curator, in his successor Mr. Thorns, and in Miss Steytler, the Secretary. Kirstenbosch has many advantages and much good fortune, and its limiting factor has always been financial. I may make a few remarks about this.

Kirstenbosch relies on both public and private sources for its income. From the Union Government it receives a substantial grant-in-aid which has been on a gradually increasing scale during the last ten years and has now reached the maximum on that scale. Within the last three or four years the Government has also assumed responsibility for the maintenance of existing buildings and provision of necessary new ones, this being a great help and relief to our funds. And further, the Department of Justice has recently given us the services of a number of prisoners for estate and general work. The Cape Town City Council gives us a grant in recognition of the asset that Kirstenbosch is to the city. The Cape Divisional Council, in whose area we fall, gives us a grant; and recently the Cape Provincial Council has also decided to do so in view of the opportunities for educational work afforded by the Gardens. Finally there is the close tie with the University of Cape Town through the Director, whose salary is paid by that institution.

With regard to private financial support we have the invaluable assistance of the Botanical Society. This Society does two main things. It supplements the grants in aid of Kirstenbosch and Whitehill—and every year the Society's grant to the Gardens has increased; and it shows convincingly that the Gardens are believed in and valued by private people all over the Union and overseas as well. The Society was founded simultaneously with the Gardens, and year by year its membership has increased until it is now close on 2,000. I do not know of any other voluntary Society in this country which has a record comparable with this. The Botanical Society can now exert considerable influence. When the Gardens were founded the Government demanded that support should be obtained from the general public: the Society now has in effect 2,000 voices replying to the Government, "We support Kirstenbosch voluntarily and we look to

you to support it adequately and generously also."

Let me now summarise the recent developments at Kirstenbosch. New entrance gates of dignified character have been built and a new drive constructed to lead from them to what will become the visitors' centre of the Gardens. A bell tower has been incorporated in the gates, this being the gift of Lady Phillips commemorating the work for Kirstenbosch of Sir Lionel Phillips: this was unveiled by Sir James Rose Innes a few months ago.

Thanks to a generous donation by Mr. J. B. Taylor, it has been possible to develop a large new area to the south of the new entrance drive: most of the construction and much planting has already been done. There have been minor developments and improvements in many directions. An additional source of water has been utilised and the reservoir enlarged. The grass paths in the Protea and Heath Gardens have been extended. A new mole-proof bulb nursery in vleiland has been made. Work on clearing exotics—pines, poplars, wattles, etc.—has gone on continually with evident results on the mountain slopes of our nature reserve. In the nursery new paths and terraces have been constructed. A Watsonia Garden has been begun. There have been alterations in the lawn and the terrace, and changes in many other directions.

Then with regard to buildings, with which we have been very much in arrears. I am glad to say that these arrears are being overtaken. A new workshop and additions to the office and nursery buildings have been made. The workmen's cottages are at last (after 19 years) all occupied by workmen. The preliminaries are complete and within the next few weeks a start will be made on several important buildings through the good offices of the Public Works Department. A cottage hostel for unmarried European men is to be built, with married quarters adjoining, this being the first section of a larger scheme. A lecture room is to be provided which will be of service in connection with the school nature study classes and for various other purposes. An addition is to be made to the tea house, which will enable refreshments to be taken in comfort in the winter or in any weather. We shall have new stables, a new public lavatory block, new gates and fence along the main Gardens frontage, and a new glasshouse for small succulents.

It would seem as if at last we were beginning to catch up with requirements, and if this continues for another year or two we should be adequately equipped with buildings for many years to come.



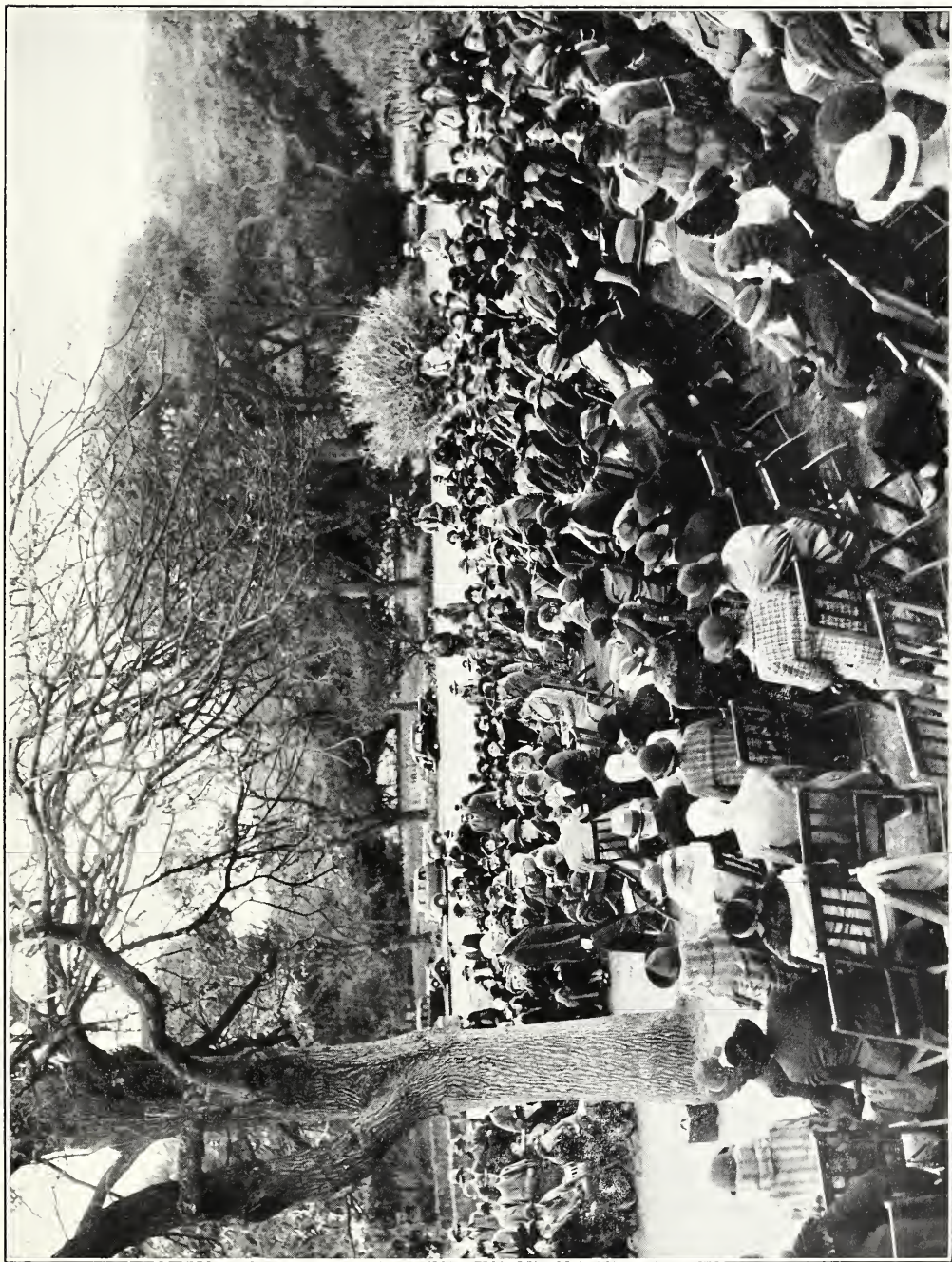


PLATE. II. — General Smuts addresses the Botanical Society at Kirstenbosch.

*Photo: "Cape Times".*



Now to turn to the future. What of the next twenty-five years? Much of the framework of the Gardens has already been constructed, but much obviously remains to be done—the succulent garden needs enlargement, we want a permanent lay-out in the spring garden, more glasshouse accommodation is required, the borders to the new drive need tackling, better parking arrangements and an information office for the public are required, more residential buildings will be necessary, and so on. And also—to which everything else is contributory—we need a higher degree of cultivation, orderliness, detailed attention to plants and scientific study of them. Our Kirstenbosch is and must remain a dynamic garden—not static like so many so-called botanic gardens. And not only must it grow and improve as a garden, but it must become a centre of botanical research.

For the garden to develop may be regarded as being like the early vegetative growth of a tree: but the tree is purposeless and we are disappointed if it does not produce flowers and fruit. In the case of Kirstenbosch and Whitehill, this means the development of the knowledge and understanding of our South African flora—and the fostering of our love for it.

In this way Kirstenbosch and Whitehill will become great Gardens—but more than this they will become great Botanic Gardens,—and still more they will become something of which we—members of the Botanical Society and all of us—can justly be proud,—the great and world-famous National Botanic Gardens of South Africa.

**General Smuts:** I am very pleased to see such a large number of people here to-day. Your presence shows that Kirstenbosch has many lovers, and I am one of them. I am here in no official capacity, but simply as a lover of Kirstenbosch. We lovers of Kirstenbosch are here to honour her, to congratulate her on her Silver Jubilee, and to wish her success in the years to come. I love Kirstenbosch, and some of the happiest hours, and I may say many of the happiest days latterly I have spent wandering about on Sunday mornings or afternoons in this wonderful garden. You know what a lover is. I do not think there is a greater poem in the world's literature than St. Paul's description of love and the lover. That is the attraction we feel for Kirstenbosch: we love it, we are patient with things that may not be quite what they should be, we have no fault to find. We are only hopeful that things will improve from year to year until this place is one of the beauty spots not only of South Africa but of the world, for that is the destiny of Kirstenbosch, make no mistake about it.

There has been a good deal of carping criticism. The place was born in criticism. Twenty-five years ago, when the establishment of Kirstenbosch was first suggested, objections were raised, objections that I need not go into to-day, and when the whole list was exhausted the weather was used. It was said that the rainfall was too heavy, that you could not have a botanical garden with a heavy rainfall. Well, we have made a start in spite of criticism and objection. For 25 years this garden has been in existence and it has more than justified its existence, and to-day it is something really worth looking at. I am reminded of a similar situation that arose 40 years ago in the Transvaal, when Paul Kruger wanted to establish the Game Reserve. There was a great deal of criticism, but in spite of that the scheme was gone on with and to-day we have the Kruger National Park, which is admitted to be one of the most remarkable things in the world. Many of you have been there. Many of you who have not been there will go in the future. But all agree that it is remarkable, and the day will come when they will say the same thing about Kirstenbosch. There is nothing like it. We are looking forward to that day. A great deal of work has already been done, but great work lies ahead. I have had an opportunity in my extensive travels overseas of visiting many gardens. Kew is an old friend. I have spent many a happy day in Kew Gardens. I have been to Dahlem, in Berlin. I have been to the Arnold Arboretum, in the United States, and I can say that knowing these great gardens of the world I have a very high opinion of Kirstenbosch. It is the Cinderella of them all, but is destined, as Cinderella so often is, to the first place in time to come. There are many unique features in the Gardens to which Professor Compton has referred. In the first place, this Garden is situated in the midst of a unique local flora. It is devoted at present to the collection and cultivation of this local flora. If you go to Kew or the Arnold Arboretum or to Dahlem you will see beautiful plant collections from all over the world. Kirstenbosch is almost entirely devoted to the cultivation of the flora of South Africa and from that point of view is unique. We have not ransacked the world. We have not gone to China and Peru for plants—they are all here. Here we collect them and here we are going to show what South Africa can do when she puts her best foot forward. Part of our flora in South Africa is unique because it is almost a desert flora. You cannot call Kirstenbosch a desert area and therefore a good deal of our flora could not be grown and handled here



suitably. And very wisely the authorities have started the Karroo Garden at Whitehill. Whitehill is one of the most attractive places in the world, where Professor Compton has been working for years now to collect the desert plants of South Africa. If you want to see wonderful plants go to Kirstenbosch and Whitehill, where there are wonderful collections. You will find both here and at Whitehill plants which you may have to take years of travelling in order to see elsewhere. This place with its offspring at Whitehill has a collection of our flora which is in every way worthy of our great flora in South Africa. Horticultural, scientific and economic work is being done here. You can get seeds here with which you can start gardens of your own. Experiments are being carried on which are of great value. I think the time is coming in South Africa when we shall not merely look at our beautiful plants but will grow them in our own gardens. We shall bring home to our gardens the beauty that is spread over the veld and in that way we shall preserve for ourselves the treasures which providence has scattered. The example of Kirstenbosch is already having a great effect all over South Africa. The spirit is spreading from this centre. You will have noticed the movement in recent years with regard to nature reserves. To my mind that is one of the greatest works which have been brought about by Kirstenbosch. You may see veld preservation being carried on in many villages, and to me there is nothing more important than this development in many parts of the country. You know what village life is like. Life is drab and commonplace. People tend to flock to the local bioscopes. Now come nature reserves and there is something that takes people away from the commonplace. This spirit of Kirstenbosch is spreading and bringing beauty and aesthetic appreciation home to us. I think this is a very great thing. You can take a place like Caledon. I remember many years ago going to Caledon, walking over the veld and collecting plants and thinking to myself what might not be done with that wonderful site. To-day you see that with very little effort and very little money that kloof has been made a wonderful addition to the spiritual life of Caledon, and of visitors who go there and see there what can be done with natural conditions in South Africa. On a smaller scale that is being done in many districts. Kirstenbosch is the first and the

biggest in a big movement to bring nature closer to us, and to make us appreciate the good things that providence has scattered round.

Professor Compton has spoken of the financial support which is given to the Institution. Well, I think that in a way Kirstenbosch has been very fortunate in that respect. In the first place it has this wonderful plot of ground. Any botanical garden would be envied for having even one-tenth of this ground going right up the mountain. Kirstenbosch is not only a national asset, it is definitely a municipal asset also, and I am very glad that the Cape Town Municipality recognises this by increasing its financial support. But my point is this, I do not want this place to be supported merely in an official way. Kirstenbosch has to be supported by the public and I hope that in years to come the support from the public will grow in greater volume than it has been growing recently. I am disappointed that we have not risen above the figure of a clear 2,000 members, where we have been standing for three years, to 5,000. If you will become missionaries, real lovers of Kirstenbosch, and not merely people who visit it now and then, if you will rise to the occasion and see that among your friends in this country and abroad the gospel is spread, there is no reason why the membership of the Botanical Society should not be 5,000. I hope that one of the effects of this meeting will be a great stimulation in the membership of Kirstenbosch. I assure you it is worth while. Institutes like this have a value far beyond what is apparent. We do not live by bread alone. We want to appreciate beauty ourselves and we want to bring it home to others too. I want you to look upon Kirstenbosch not merely as a show place, but as part of the spiritual life of this country. Here we have natural surroundings such as you have almost nowhere else in the world, and we can absorb these spiritual assets.

I could wish that I could see this place 25 years hence. I could wish almost to revisit it in 25 years. I should like to see this country and its young people growing up with an appreciation of beauty. Our values are sometimes false. We are too prone to attach value to the material and economic. Here we have something bigger and should exploit to the uttermost these opportunities for spiritual education and aesthetic development.

I hope that Kirstenbosch will continue to flourish in the years to come and that all of you ladies and gentlemen will help to make it a success.

# The Mayoral Banquet.

**H**IS Worship the Mayor of Cape Town, Mr. W. C. Foster, gave a Banquet at the Muizenberg Pavilion on 7th September, 1938, in honour of the Twenty-fifth Anniversary of the foundation of the National Botanic Gardens and of the Botanical Society.

Their Excellencies the Governor-General and Lady Duncan, the Hon. the Minister for the Interior, the Trustees of the National Botanic Gardens, the Council of the Botanical Society, the Staff of Kirstenbosch, City Councillors and a large number of distinguished guests were present.

The following speeches were made:—

**His Worship the Mayor** welcomed Their Excellencies and the guests on behalf of the City Council, on the occasion of the Silver Jubilee of the National Botanic Gardens. Kirstenbosch, he said, is famed as a garden where many of our most beautiful wild flowers are being cultivated: many of them would probably become extinct in the wild state, but are now being preserved for posterity. He was deeply sensible of the publicity value of the gardens to the City and to South Africa generally. He thought that more ought to be done to exploit them in this direction. Although Kirstenbosch is not within the municipal area, the City authorities had for many years taken a proprietary interest in its welfare. The Council realises its value, and although money is so difficult to get, the Council had recently increased its annual grant to the Gardens. He wished to offer his hearty congratulations on the Gardens' Anniversary and his best wishes for their future.

**His Excellency the Governor-General** (Sir Patrick Duncan), proposing the toast of the National Botanic Gardens, said:

It is a pleasure to me to be able to propose the toast of the National Botanic Gardens on the occasion of their twenty-fifth anniversary. I remember when they were born. I remember when in the House of Assembly in 1913 Sir Lionel Phillips introduced the motion that the Government should set aside land at Kirstenbosch for the purpose of a National Botanic Gardens, and while remembering that I think we should remember with gratitude what Sir Lionel and Lady Phillips have done for South Africa. Another thing I think we should remember at this time is what a wonderful work Cecil Rhodes did for South Africa

and particularly for this Mother City of Cape Town. Knowing what he attempted and what he did, we sometimes forget how young a man he was when he died. When we think of Kirstenbosch, let us regard it as another of the many items which we have to put to the memory of Cecil Rhodes. Well now, that motion was introduced in the House of Assembly and of course was carried unanimously. Then the Government gave it the usual "sympathetic consideration." But you cannot make a garden out of land alone, neither can you make a garden out of sympathy. And it was a long time before more was forthcoming. I feel that we owe a great debt to the men and women in charge, and especially members of the Botanical Society. I need only mention the name of Professor Pearson—I am not mentioning others although there are many that can be mentioned—because he has gone from us and because he did important work for these Botanic Gardens. I think we can look on the Gardens under three aspects. First, I would put aesthetic. The Gardens are a real place of beauty. There we are brought into contact with nature in one of her most ravishing aspects. You see there all the varieties of plants and flowers which South Africa produces. I think that is one of the merits of Kirstenbosch. It is not a museum for exotic plants which can be grown anywhere. The Gardens are a show place for South African flora and a place where visitors from overseas and from other parts of South Africa and even from the Cape Peninsula itself can go and can find an education in what the South African flora can do. And secondly, I should look at the scientific side, and the work of botanical and economic importance that is being done at Kirstenbosch.

And then, Mr. Mayor, you mentioned what I may call the commercial aspect. As one who has spent much of his life in the North, I have need of your sympathy in being cut off from the beauties of Cape Town and its surroundings; and the only compensation I can think of, Sir, is that we can extend the like sympathy to you for being so closely familiar with these marvellous scenes down here that you have never been able to appreciate them at their full value. The Gardens have a definite publicity value and will help to attract people here. This is an advantage to Cape Town and may and will bring in cash returns from which the City may be able to supplement the



inadequate support received by Kirstenbosch from the Government.

Ladies and Gentlemen, I ask you to drink the toast of the National Botanic Gardens.

**Mr. W. Duncan Baxter**, Chairman of the Trustees of the National Botanic Gardens, replied as follows:

Your Excellencies, Mr. Mayor, Ladies and Gentlemen: This is a red-letter day in the history of Kirstenbosch and in the lives of all those of us who have been devoting ourselves to Kirstenbosch all these years. It is a source of great satisfaction to us all that Their Excellencies are here to take part in this happy celebration. I also at the outset thank you, Mr. Mayor, for having given this dinner on the occasion of the twenty-fifth anniversary of the foundation of the Gardens. There Mr. Foster shows, as he always has, that he appreciates public sentiments and realises what is at the hearts of the people. Now, Ladies and Gentlemen, I am replying to the toast as the Chairman of the Board of Trustees of Kirstenbosch, the governing body of Kirstenbosch. But I also have another special reason for speaking, a rather sad one, because I am the only living representative still on the Kirstenbosch Board who was an original Trustee: all the others have gone to rest. The original Board of Trustees were Lord de Villiers, Sir David Graaff, Sir Lionel Phillips (one of the best men Kirstenbosch ever had), Mr. John Parker, then Mayor of Cape Town, and myself. On this occasion the first thing I want to do, and I think you will want to do also, is to pay tribute to the founder of Kirstenbosch, Harold Pearson. I do not know whether many of you here remember Pearson. He was a man who made an attractive impression on the people with whom he came into contact. He was a man of insight, enthusiasm and vision who looked into the future and saw the possibilities which lay around him. His lovable personality radiated enthusiasm, and he had the power of interesting people in his work and in his ideas; and that to a great extent is the reason why Kirstenbosch came into existence. It was a great blow when he died in 1916, only three years after the Gardens were established. I ask you to think of the inscription on his grave at Kirstenbosch, "If you seek his monument look around," commemorating his great work, Kirstenbosch. For years before 1913 Pearson had advocated a National Botanic Garden for South Africa. He had put it in writing and in speaking and by conversation. He induced Sir Lionel Phillips to agree with him wholeheartedly and to get Parliament to pass a unanimous

resolution in favour of the country establishing the National Botanic Gardens. Fortunately he found in General Louis Botha a sympathetic Minister. Kirstenbosch has not always found a sympathetic Minister, but Pearson found one in Botha, another man with vision and foresight who saw the possibilities of this great Garden. I think that we can say that General Botha was one of the founders of Kirstenbosch. He was sympathetic to the idea, he saw the possibilities, and he did his best to establish them. He was also a man of great wisdom because he realised right from the start that it must not be a Government Institution. We must have the South African public behind us, and must rely on its enthusiasm for the flora of South Africa. As a consequence of this the establishment of the Botanical Society of South Africa is largely the inspiration of Botha, and the Society has always been a tower of strength to the Gardens. The Botanical Society has now about 2,000 members, all enthusiastic for Kirstenbosch and for the flora of South Africa. It not only provides us with part of our income, but out of its life members' fund it has enabled the Trustees to build several of the main features of the Gardens, the Fern Dell, Succulent Garden and other things. I willingly pay tribute to the Botanical Society which has given Kirstenbosch invaluable support as representing the public of South Africa. We have had, as a matter of history, rather a chequered career. After Pearson's death we had a great struggle to keep alive at all. The war came and our grant was cut down and we had to struggle for existence, and it is only in recent years that we have come to a financial condition of less anxiety.

We have our Government grant and they have relieved us of the maintenance of buildings and various things of that kind, and have for the last few years provided us with some of the necessary new buildings for which we have been struggling for many years. I wish gratefully to acknowledge this assistance. I also acknowledge assistance received from the Cape Town City Council. Right from the start it has given us grants which have recently been increased by a considerable sum. We also express our thanks to the Divisional Council of the Cape, to the Cape Provincial Council, and to the University of Cape Town, which has provided us with our worthy Director.

Pearson advocated the establishment of these Gardens 30 years ago because he found that little or nothing was being done to develop a knowledge of





PLATE III. — On the Mountain Slopes at Kirstenbosch.

*Photo: Irene Heseltine,*





PLATE IV. — THE TEA HOUSE, KIRSTENBOSCH.

*Photo: R. H. Compton.*

the flora of South Africa. Pearson also pointed out the value of Botanic Gardens such as Kew in developing the economic resources of the Empire. At that time there were in South Africa a number of so-called Botanic Gardens though there was not much that was botanic about them. As a matter of fact, in one of the articles that Pearson wrote he reminded the public that the Curator who was then in charge of the Cape Town Municipal Garden had said that they did not cultivate South African plants because the public in Cape Town were not interested in them. I think Kirstenbosch can at least say that such a thing would not happen again. Pearson realised, too, that nothing was being done to preserve the wonderful flora of the South-Western Districts of the Cape.

In the North doubt is still sometimes expressed, even after twenty-five years, as to the wisdom of selecting Kirstenbosch as the site of the National Botanic Gardens of South Africa. In addition to its other advantages, it was selected as the centre of one of the most wondrous areas of wild flowers of the world. The Cape Peninsula and the country round the Cape Peninsula within a radius of 100 miles is recognised by botanists as one of the richest in the world. Kirstenbosch is the centre of that area and you will agree with the opinion that Kirstenbosch is the proper place for the National Botanic Gardens. Pearson never claimed that Kirstenbosch could grow all the flowers in South Africa or that any other part of South Africa could do so. He was clear about that, and his wish when the Gardens were founded was that other centres as well could be established for the cultivation of the South African flora. He recognised that plants that grow in the Transvaal or Natal need not necessarily flourish down here and that Kirstenbosch might not be suitable for all plants. As a matter of fact, we have grown Karoo plants very successfully at Kirstenbosch, though the climate is very unlike that of the Karoo. We should like gardens to be founded in other parts of South Africa. At Whitehill, near Matjesfontein, we have actually established the Karoo Garden, where Karoo succulents are grown, and this is of great interest to botanists all over the world.

After all these years, first of all we have established a beautiful garden in wonderful and unique surroundings of an extent of 1,200 acres, of which about 50 are cultivated and the remainder is preserved as a nature reserve. In the second place, the public sends specimens of wild flowers from all over the country to Kirstenbosch, where they are grown and

identified and made available for distribution. As a result, many of our flowers are now in general cultivation not only in South Africa but in other countries.

Thirdly, Kirstenbosch is an educational centre: we now have two teachers attached to the Gardens, and classes of school-children come every day of the school year for nature study. In this way thousands of young people learn to appreciate the flora of South Africa.

Lastly, the Gardens publishes a scientific quarterly, the *Journal of South African Botany*, and so helps to disseminate the results of research work in the various aspects of the South African flora.

In conclusion, I should like to emphasise the fact that Kirstenbosch is not only a local Cape institution but is definitely South African in its nature and scope.

**The Mayor** then called upon the Hon. R. Stuttaford, Minister for the Interior, to propose the toast of the Botanical Society of South Africa.

**Mr. Stuttaford** said: Your Excellencies, Mr. Mayor, Ladies and Gentlemen, I am glad that in Mr. Duncan Baxter's most interesting speech he gave us some idea of the origin and purpose of the Botanical Society, because to most of us the origin of the Botanical Society was and is very little known. The Botanical Society was formed because the Government of the day wished first to be satisfied that the people of South Africa wanted a National Botanic Garden and that the people of the western area of the Union wanted that garden to be at Kirstenbosch. The Government wanted to know whether the people would express their wish in a practical way by putting up money to help the project. Thanks to the enthusiasm and energy of those who took the matter in hand, the objects of the Society have been very largely attained. As Mr. Baxter says, it is very necessary that the funds of the Botanical Society should continue to grow in order that their contribution to the work at Kirstenbosch Gardens shall be constantly increased. Many think that the Botanical Society of South Africa is a highly scientific Society to whose select circle they have little right to aspire, but this is not so. The work of the Botanical Society is definitely practical and its activities have been considerable. The Society is the immediate concern of the people, particularly the people of the Cape; and I think that it is the people of the Cape Peninsula to whom we should look to do the most for Kirstenbosch Gardens. I was very glad to hear the fine tribute His Excellency



paid to Cecil Rhodes, for I feel that we owe him deep gratitude. His wise efforts to preserve the largest parts of the slopes of Table Mountain have made possible the establishment of a garden near the City whose situation is unrivalled in the world. I say that the work of the Botanical Society is essentially practical, and I am prepared to defend it even to hard-headed men of the world. We have to see that our people are protected in a material way by providing the necessary food and shelter for them, but we require something more than that. A man must have recreation for his mind. He must have inspiration. He must have some place where he can recover from the weight of cares with which everyone of us is daily surrounded, and there is nowhere he can do that so well as in Kirstenbosch Garden and on the mountain slopes above.

There have been this evening one or two remarks made as to the help which the Government gives to Kirstenbosch. I may say that His Excellency has to share with me the responsibility for the paucity of the grant, because in years gone by he occupied the chair that I now occupy. Well, we are doing a little for Kirstenbosch this year, a great deal less than the Trustees wanted, and even less than I was prepared to do. But you must remember that the calls on the Government for various institutions are very many. His Excellency will remember the very large number of institutions which have to be supported in the Union. And the revenue is falling, which makes it a very bad time to ask for additional help. But I think the part of the Minister of the Interior here would be easier if we found that people increased their support of these institutions, and I might suggest that in this case the Government might also increase theirs. I think, too, that the City Council might do the same. Because, Mr. Chairman, we must appreciate that the various capitals of the Provinces and the two capitals of the Union do get more direct benefit from the institutions in their midst than the rest of the Union. I have frequently to emphasise this in the North and I do so now here. I think that Kirstenbosch is largely the responsibility of the Cape Peninsula with, I agree, reasonable help from the Government.

Now, Mr. Mayor, in proposing the toast of the Botanical Society, I strongly recommend it to the people, particularly of the Cape Peninsula. I think the people should support it in considerably larger

numbers. To the men who have made Kirstenbosch, to the men who have worked for a quarter of a century in developing that marvellous garden, I think we must tender our congratulations and our thanks. Ladies and Gentlemen, I give you the toast of the Botanical Society of South Africa.

**Mr. F. W. Metelkamp**, Chairman of the Council of the Botanical Society, replied as follows:—

When Kirstenbosch was founded in 1913, General Botha expressed the view that any grant-in-aid of the Gardens from public funds would need to be augmented from other sources and that the Government would expect this to be done. This really meant that the Botanical Society had to be launched, and in fact the foundation of the Society was a condition precedent to the establishment of the Gardens. Since its foundation the Society had contributed its funds, derived from voluntary subscriptions, in ever-increasing measure, to the Gardens. It was a matter of pride and thanksgiving when those responsible for the Botanical Society were able to hand over the first £50 to the Kirstenbosch Trustees. During the first year £212 was thus handed over, and the contributions have steadily increased until during the past three years the sum granted to the Trustees every year has exceeded £1,000. In all the amount paid over by the Botanical Society has exceeded £15,000 for purposes of maintenance. In addition, the Society has made substantial grants to the Trustees from its Life Members' Fund for special pieces of construction work at Kirstenbosch, such as the Fern Dell, the Succulent Garden and the Tea House.

The Society has recently been active in connection with the Nature Study classes for children at Kirstenbosch. This work has increased considerably, and now in response to the Society's representation the Cape Education Department has agreed to provide a second teacher attached to the Gardens. The Council of the Society has recently discussed the desirability of taking the lead on behalf of the public in matters connected with the preservation of the South African flora, and he hoped that the Society would decide to undertake this important extension of its work.

**The Mayor** then mentioned that some of the party of biologists from Holland who were visiting South Africa were present at the banquet, and he had much pleasure in inviting one of them, Dr. H. J. Lam, the Director of the National Herbarium at Leiden, to make a speech.

**Dr. Lam** said: I have great pleasure in being allowed to say a few words here on the occasion of the twenty-fifth anniversary of the world-famous Kirstenbosch Gardens. A few days ago a party of Dutch botanists was shown round by the Director and other Cape botanists. I have therefore had an excellent opportunity of becoming acquainted with the work

of Kirstenbosch and I should like to congratulate him on the Gardens and on the condition to which he has managed to raise them during a directorship of nineteen years.

(The remainder of Dr. Lam's address was substantially the same as his letter of greeting printed on page 10).

## Kirstenbosch Essay Competition.

**D**URING the Silver Jubilee celebrations the Botanical Society offered prizes for essays to be written by school children up to the age of 14 on "A Visit to Kirstenbosch." The following is the winning essay, written by Winona Watermeyer, Netherby Hall School, Rondebosch.

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### A VISIT TO KIRSTENBOSCH.

One fine Spring morning a party of girls, of whom I was one, went to Kirstenbosch. We arrived there at about ten o'clock, and started for a walk as far round Kirstenbosch as is possible in three hours.

We walked up a little path on to a hill, and there we saw a huge patch of *Heliophila* or blue flax, with similar patches of orange *Ursinia* on each side, the whole mass of blooms swaying in the wind. The effect the dancing flax gave was that of a tiny lake rippling in the breeze, and bounded by yellow sands. Further on a small patch of Rainy Daisies, made up of the pure white flower and its dark green leaves, made a very striking picture, and on a bank nearby were some "Vygies," pink, soft yellow, and white, which from some distance away looked like the icing on a cake. There were the *Felicia* and "*Gousblomme*" in plenty, while a few *Senecio* and a variety of *Babianas* added to the brightness of the scene.

From this path we went to the Succulent Garden, which is one of the most interesting parts of Kirstenbosch; for not only does it contain a really marvellous collection of succulents, but also it is in a very lovely part of the garden, with the mountain and a plantation of silver trees behind it, and before it an almost incomparable view of the Cape Flats. The day of our visit being warm, the view was slightly obscured by a thin haze, which grew deeper in the distance. In the foreground lies the level land, with specks of white where, in reality, lie small villages; behind this

rises the majestic Hottentots Holland Mountain, and to the left a range of hills rolls back, almost indiscernible behind the haze.

After looking over this garden we made our way to the pretty little pool known as "Lady Anne Barnard's Bath." The water flows out of the bath and falls down in a little cascade, beneath which grow beautiful ferns, and arum lilies with spotted leaves; from the waterfall a tiny streamlet leads to two ponds, from which beautiful tall papyrus grasses stretch their lovely heads.

From these pools we went to the protea garden, and looked at the many rare and most beautiful proteas which are cultivated at Kirstenbosch. There were many bushes of that dainty pink and white protea popularly known as the "Blushing Bride," and a number of other kinds of proteas. We particularly noticed a huge bush of Pincushion Proteas with more blooms on it than any other protea bush we had seen, and a lovely bush of Reflexis Proteas, which remind one of "before and after a permanent wave," with their long straight stamens at the bottom and the very much curled ones at the top.

As we left the gardens, to trudge reluctantly homewards, we could not help pitying those people who are either unable, or have not the inclination, to go to Kirstenbosch.

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The following are quotations from some of the other essays, whose authors shall be anonymous:—

"We then saw Miss Johns, the Nature Study teacher. It was the first time we had ever been to Kirstenbosch and everything we saw was wonderful."

"Walking along the Bridle Path, we observed some really good specimens of Nature growing completely wild."

"The vascular system of Kirstenbosch consists of trees, bushes, flowers and insects, etc."



"On returning to the tea-house I could not help noticing the ever busy bees which, blown by their passions here and there, went and came by thousands."

"The lady squirrel feeds its young on milk. When they are about a week old, she takes them off their milk diet and feeds them on acorns."

"The flowers, too, are very beautiful and have a most arduous scent which seems to soothe and set me at rest."

"I walked away to the pond where dragon flies flew lazily and fish swam in the water. A loud snore and I turned to see a gardener sleeping in the shade of an oak tree."

"French Hoek and Kirstenbosch are the only places where there are Blushing Brides. Miss Johns told us a very interesting story about them. Maybe she will tell you it, too."

## Nature Study at Kirstenbosch.

VISITORS noticing parties of children being taken round the Gardens at Kirstenbosch invariably make the same remark: "Lucky children to have nature study out in the open!"

Every week between two and three hundred children come from different schools in the Peninsula and at times from as far afield as Stellenbosch and Wellington, to do nature study, botany or field biology in the Gardens. The originator of the idea is Dr. H. M. L. Bolus who, several years ago, realised the possibilities for study in the Gardens. Dr. Bolus gave unstintingly of her time and energy to students and children willing to come to Kirstenbosch and learn from her. Mrs. Bolus could not go on doing this indefinitely and eventually Miss L. M. Starke was appointed as full-time nature study teacher in the Gardens, and it has been my privilege to succeed her. The numbers of children attending classes at Kirstenbosch have grown and now there are two teachers permanently appointed.

The greater number of child visitors are in the primary school and the ideal aimed at is for each child to pay twelve visits to Kirstenbosch spread over three years and including all the four seasons.

The first time children come to Kirstenbosch for lessons a short survey is given of the history of Kirstenbosch from the time when Van Riebeeck used part of it as his cattle farm and established the first colonial boundary when he planted a hedge of wild almond (*Braebium stellatifolium*) to keep his cattle from straying. The sturdy oak which shades the benches where we sit for the first lesson, indicates the influence of Simon van der Stel and so to the time of Cecil Rhodes, who bought Kirstenbosch from Mr. Cloete, and left it in his will for the people of South Africa. The story goes on to 1913, when

Professor H. W. Pearson had the wonderful idea of establishing a garden where South African wild flowers could be cultivated.

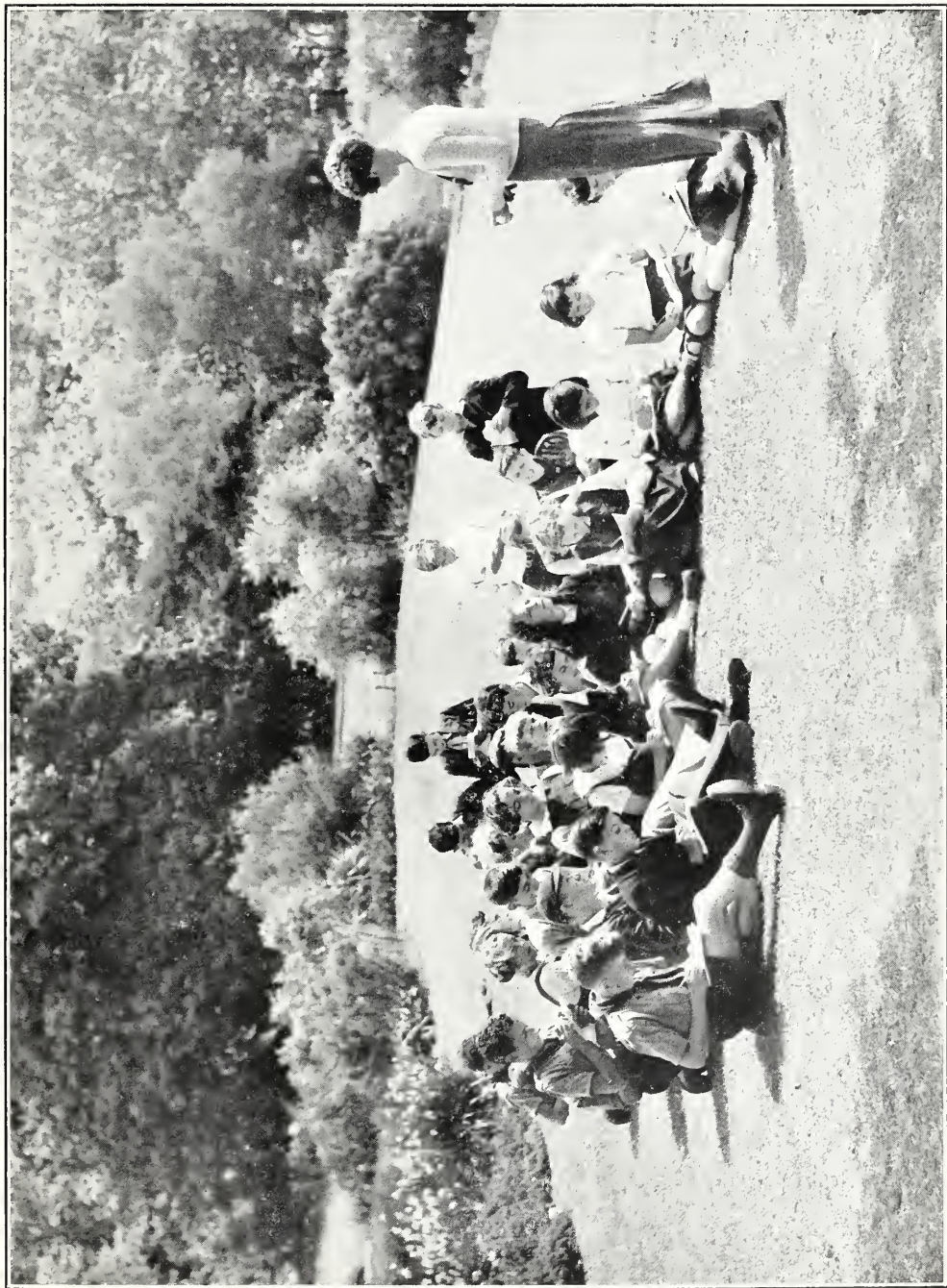
Then a tour of the Gardens is started and the geographical features pointed out. It is a real thrill for the youngsters, during a break, to explore the two tributaries of the Liesbeek River and find out where they meet.

Schemes of work have been worked out for the four seasons of the year for all the standards from one to ten and graded to prevent overlapping and to get the best possible results. It is not possible to give full details of all the schemes, but it may interest a visitor to the Gardens to know a few of the things shown and explained to a Standard IV. class while they are near the lily pond on the lawn in the summer. The children trace the origin of the water from the spring in the Dell and note the types of plants growing alongside the stream.

At the pond itself it has been found that the first interest is in the animal life. Movement attracts attention, for above the water skim the dragon flies and damselflies, and if we are very fortunate a kingfisher is seen. On the surface of the water are the whirligig beetles and the water measurers—below the surface are the fish, the platannas, the crabs and the water tortoise. It does not matter what age the child is—these animals are always fascinating. It is interesting to note some of the biological principles which can be taught here—the relation of structure to function, life cycles, reproductive processes, the inter-relation between plants and animals, just to mention a few.

Food plays an important part—not only as a source of energy for living things (wise mothers always provide an additional supply, knowing that appetites





*Photo: "Cape Times".*

PLATE V. — A Nature Study Class at Kirstenbosch.





PLATE VI. — SILVER TREES.

*Photo: H. M. Biegel.*

increase in the open air); but what fun there is in comparing the way a fish bites at a crust with the way a platanna uses its front legs to ensure that not too large a mouthful has been taken. Then these two methods can be compared with that of a crab, that very useful scavenger of the pond and streams.

Then comes the study of the plants and their environment. Along the margin of the pond the damp loving plants, including the Cape willow and, alas! how few boys know that the best cricket bats are made from willow trees! Paddlers, reeds and rushes and the lovely water crinum with its large but light seeds that float so well, are observed. The children, through their own observations, can tell why the blue water lily will not be submerged if the water in the pond rises a foot. Their keen eyes spot the long petioles of the leaves and the angle at which they are set. The youngsters, I think, appreciate the fact that they are privileged to do what grown-up visitors may not do—that is, blow through the cut stem of a water lily to see how efficiently the air spaces function and then draw a cross section of the stem to show those same air spaces. Submerged plants are most interesting, especially when we haul out a piece of bladderwort to see the little bladders used for catching minute water animals and then to see those animals later under the microscope—well, the average visitor to the Gardens does not have that opportunity!

This is not a full description of all that can be done at the pond—and there are other areas in the cultivated part of the Gardens where observations can be made. On the rockery there are the succulent plants with their various adaptations to ensure a successful survival in a difficult environment. Grown-up visitors are not privileged to pick a *Glottiphyllum* fruit and

see the almost magically quick opening of the fruit in water and the speedy scattering of seeds at a time when conditions are best for germination!

The other parts of the garden are all used for lessons, the nursery, the protea section, and the economic gardens, and in addition there is the joy of exploring the uncultivated area, and studying the forests in the gorges.

Hunting for Cryptofauna sounds formidable, but how much more interesting it is to study the haunts of life and the habits of these hidden animals at first hand. How many of us plagued with slugs and snails in our gardens in the summer have seen their natural enemy the female glow-worm devouring them? It is hard to resist the plea of the child who sees this for the first time, "Can I take just one home to show my daddy?"

It is amusing to note that the so-called naughty and inattentive children in school often show up best at Kirstenbosch. In the classroom they are a nuisance, but out in the open their roving eyes see so much more than the others. With a little training "just seeing" can be developed into real observation and what a child sees for himself is nature study—the other is just nature knowledge.

In conclusion, may I add that besides nature study at Kirstenbosch, the children can learn useful lessons in citizenship? Litter louts are frowned upon, defacing of trees, benches, and the sundial is looked upon as a crime and respect for public property is taught. If we can teach the younger generation "to learn to enjoy and not to destroy" one of the ideals of the founder of the Gardens will have been realised.

M. E. JOHNS.



# List of Members of the Botanical Society.

(LIFE MEMBERS:

FAMILY MEMBERS:

Ordinary Members:

Associates.)

The star (\*) indicates Members who are also Subscribers to the Karoo Garden, Whitehill.

In case of any inaccuracy in the following list it is requested that notification should be made to the Hon. Secretary, P.O. Box 267, Cape Town.

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H. W.  
SEWARD, PROF. SIR  
A. C.

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ABBOTT, W. C.  
Aberconway, Lord.  
Abernethy, Miss O.  
Ackerman, Miss A.  
Ackerman, D. J. J.  
Ackerman, Mrs. G.  
Ackermann, Mrs. H. D.  
Acock, J. P. H.  
Adams, Mrs. E. V.  
Adams, Miss G. U.  
Adamson, Mrs. D. A.  
ADAMSON, PROF. R. S.  
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AKERMAN, C.  
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Woodstock, Principal.  
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MOHAMED  
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Anderson, Lady  
Anderson, Mrs. T.  
Anderson, Capt. W. W.  
Andersson, E. J.

Andersson, Mrs. E. J.  
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Anthony, E. A.  
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Benjamin, Mrs. L. E.  
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Botha, Miss S.  
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Bowen, Mrs. R. W.  
Bowie, Miss M.  
Bowles, W.  
Bowley, Mrs. M. A.  
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Boyce Thompson South  
Western Arboretum.  
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Bray, Mrs. W. M.  
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Bright, Mrs. H. H.  
Brimble, L. A.

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BRINK, V. L.  
Britten, Miss G. V.  
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Brock, Miss M. E.  
Broderip, E. F.  
Bromley, Mrs. R.  
Brooke, Brig.-Gen. C. R.  
Ingham  
Broome, Dr. E. M.  
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Burnett-Millar, R.  
Burns, Mrs. A. M.  
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Burtt-Davy, Mrs. A. B.  
Buss, W. G.  
\*Butcher, H. J.  
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Buxton, Mrs. F. C.  
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C.  
Cachet, Miss E.  
Caldersdorp, Mrs. J.  
Callaghan, Mrs. B. G.  
Callanan, Mrs. O.  
\*Callenfels, J. E. J.  
Cambridge Hort.  
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Stratford, Hon. Mr. Justice  
Strickland, Lt. Col. L.  
\*STRUBEN, CAPT. C. F. W.  
Struben, Mrs. R.  
Stuart Low Co.  
Stubber, C.  
Sturrock, F. C.  
STUTTAFORD, R.  
Sutherland, G.  
Suttie, D. P.  
SUTTON, Mrs. H.  
SUTTON, L. N.  
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\*Swan, R.  
\*Swan, Mrs. R.  
Svan, W. H.  
Suari, Mej. L. C.  
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Swingler, G. H.  
Syer, F. C.  
Syfret, Mrs. A. G.  
Syfret, E.  
Syfret, Mrs. S. B. T.  
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Talent, F.  
Talent, G. F.  
Tamlin, Mrs.  
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Tatham, Mrs. A. S.  
Tatham, Mrs. F. S.  
Taylor, Mrs. A. F. K.  
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Taylor, Mrs. C.  
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TAYLOR, MRS. J. B.  
Taylor, J. C.  
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Taylor, S. S.  
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TEVIS, HUGH  
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Thacher, T.  
Thatcher, N.  
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Theron, Mej. M. M.  
Thesen, Mrs. C. W.  
Thesen, M. T.  
Thesen, Mrs. M. T.  
Thomas, A.  
Thomas, Mrs. A.  
Thomas, A. B.  
Thomas, Miss E. N.  
THOMAS, E. W. McL.  
THOMAS, MRS. E. W. McL.  
THOMAS, MR. & MRS. H. M.  
Thomas, Mrs. N.  
Thomas, Dr. W.  
\*Thomson, Lady  
Thompson, Miss E. M.  
Thompson, Mrs. H.  
Thorne, Mrs. O.  
THORNE, W. J.  
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Thorpe, W. C.  
Thorpe, Mrs. I.  
\*Thudichum, J.  
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Tichy, W.  
Tietz, Mrs.  
Tilley, A. C.  
Tippett, Mrs. E.  
Toll, W. E.  
Tomes, V.  
Tomlin, Miss C. M.  
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Tomlinson, Mrs. H. R.  
\*Tonkin, Mrs. M.  
Topham, Mrs. R. J.  
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Townsend, S. F.  
Town-Smith, Miss M.  
Training School, Stellenbosch.  
Transvaal Horticultural Society  
\*TRANSVAAL LAND OWNERS' ASSOC.  
\*Transvaal Museum  
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Truter, Miss S. J.  
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Turner, Mrs. J. A.  
Turner, O. L.  
Turner, Mrs. O. L.  
\*Turner, R. W.  
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U.  
\*Ullswater, Viscountess Underwood, Miss D.  
University College of O.F.S.  
Ussher, Mrs. L.  
V.  
Vadas, L. P.  
Van Aarde, A. J.  
Van Balen, J. C.  
Van Braam, Dr. P.  
Van Breda, Mrs. A. M.  
Van Coeverden, E. O. C.  
\*Van den Houten, A. W.  
\*Van der Bijl, Dr. H. J.  
Van der Byl, Mrs. C.  
Van der Byl, Mrs. C. L.  
\*Van der Byl, Mrs. D.  
Van der Byl, Mrs. G.  
Van der Byl, Dr. P. A.  
\*Van der Byl, Mrs. P. V. G.  
Van der Horst, Mrs. A.  
Van der Horst, J. G.  
Van der Merwe, Miss E.  
Van der Merwe, Mrs. M.  
Van der Merwe, Mrs. P.  
Van der Riet, Dr.  
Van der Willigen, Dr. F. H.  
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Van Renen, C.  
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Van Ryneveld, Mrs. W. A.  
Van Schendel, C.  
Van Staveren, Miss E.  
\*Van Staveren, Miss J.  
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Van Wyk, Miss A. E.  
Van Zyl, Hon. Mr. Justice H. S.  
Van Zyl, Major G. B.  
Vaughan, R. E.  
Venning, Miss L. A. G.  
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Versfeld, Mrs. J. J.  
Verster, Mrs. J.  
Verster, Mrs. R. J.  
Viedge, Miss E.  
Vigne, C.  
Vigne, J. T.  
Viljoen, Mrs. W. C.  
Villet, Dr. C. T.  
Villiers-Stuart, Brig.-Gen. W.  
Villiers-Stuart, Mrs. E. C.  
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Visser, D. H.  
Visser, F. A.  
Vogt, Mrs. J. R.  
Vos, M. C.  
\*Voskule, Dr. G. A.  
W.  
Waddell, Miss J.  
Wagner, Mrs. I. M.  
Wagstaffe, Mrs. B.  
Walgate, Miss M.  
Walker, Mrs. R. S.  
Wallace, Mrs. C.  
Wallace, G. V.  
Wallace, Miss K. H.  
Walls, J.  
Walmer, Municipality of  
\*Walpole, E. H.  
Walsh, Miss A. M.  
Walsh, T. D.  
Walter, H.  
Walters, H.  
Walton, A. J.  
Wauchope, H. E. Sir Arthur  
Wanganui Scenery Preservation Society.  
Wanklyn, E. N.  
Ward, Mrs. A. D.  
Ware, Mrs. M.  
Warre, Captain G.  
Watermeyer, Mr. Justice E. F.  
Watkins, Prof. E. L.  
Watson, Miss A.  
Watson, Mrs. T.  
\*WATSON, MAJOR W. D. P.  
Watts, Mrs. M.  
Watts, Miss M. E.  
\*Weatherby, E. W.  
Webber, Mrs. L. O.  
Webber, W. F. K.  
WEBBER, W. S.  
WEBSTER, W. A.  
WEEDEN, W. F.  
Weeks, A. G.  
Weidman, S. J.  
Weil, Major S.  
Weintroub, Miss D.  
Weir, R.  
Wellington Girls High School.



|                              |                      |                         |  |                             |
|------------------------------|----------------------|-------------------------|--|-----------------------------|
| Wellington Public Library    | Whittingdale, W.     | *Wilman, Miss M.        | Women's Agricultural College, Boschetto. | Wostenholme, Mrs. A. M.     |
| Wells, Dr. Simpson           | Wicht, J. H.         | Wilmot, Mrs. J.         | Wood, A. H.                              | Wragg, Miss P.              |
| Wentzel, Miss H. S.          | Wiedman, S. J.       | Wilson, A. H.           | Wood, Mrs. H.                            | Wright, Mrs. B.             |
| Werdmuller, G. C. G.         | Wiener, F. K.        | Wilson, E.              | Wood, H. E.                              | Wroughton, Mrs. F. H.       |
| West, J.                     | Wiggett, Mrs. S. J.  | Wilson, Mrs. G. H.      | Wood, Mrs. J. G.                         | Wylde, S. B.                |
| West, Miss M. G.             | *Wild, C. E.         | Wilson, G. R.           | Wood, Mrs. S.                            | Wylie, Mrs. G. H.           |
| Westcliff School, Cape Town. | Wiley, Miss V.       | Wilson, H.              | Wood, Miss S.                            | Wynberg Girls' High School. |
| Wetzlar, J. S.               | *Williams, A. F.     | Wilson, Mrs. M. M.      | Woodhead, Lt. Col. B. M.                 |                             |
| Wheeldon, Mrs. A. S.         | Williams, Mrs. B.    | Wilson, Miss W.         | Woodhead, Mrs. M. V.                     | Y.                          |
| *WHITE, A.                   | WILLIAMS, Mrs. I.    | Wilter, B. A.           | Woodin, Mrs. J.                          |                             |
| White, C. C.                 | Williams, Miss P.    | Windell, Mrs. B.        | Woodlawn Park Cemetery                   | *Yedayoshi, T.              |
| White, Mrs. F. N.            | Williams, W. T.      | *Winearls, J. R.        | Woods, D. H.                             | Yeoman, W. F.               |
| WHITE, MISS H.               | Williamson, A. V.    | Wintour, A.             | Woodyoung, Miss E.                       | Yeomans, J. T.              |
| White, L.                    | Williamson, Miss E.  | Wintour, Mrs. A.        | Wood, G.                                 | Young, Mrs. J. B.           |
| White, Mrs. L.               | *Williamson, G. E.   | Wirth, Miss L.          | *Woolley, C. H. F.                       | Young, Mrs. J. F.           |
| White, Very Rev. R. L.       | Willis, R. E.        | WITHINSHAW, Mrs. E.     | Worcester Municipality                   | Young, W.                   |
| Whitehead, Mrs. F.           | Willmott, Mrs. E. P. | Woerodsky, Madame       | Wordsworth, Mrs. A. L.                   | Yudelman, J.                |
| *Whitley, H.                 | Willmott, Miss G. E. | Wolfaardt, P. B.        |  |                             |
|                              | WILLS, LADY          | Wolthuys, J. J. Verbeek |  |                             |
|                              | WILLS, MISS V.       |                         |  |                             |

# The Botanical Society of South Africa.

## ANNUAL REPORT, 1937.

The Council have pleasure in presenting the Twenty-fourth Annual Report of the Proceedings of the Society which reveals steady progress, proving that the Public are in sympathy with the aims and objects of the Society, which primarily are to render financial aid to the National Botanic Gardens. The free distribution of surplus seeds from Kirstenbosch has been an incentive to Membership of the Society, more particularly so in the case of Overseas Members, including, as they do, residents in distant parts: America, Japan, India, New Zealand, Palestine, Australia, and other far-distant countries.

The Membership of the Society stands at:

|                   |    |    |    |    |       |
|-------------------|----|----|----|----|-------|
| Life Members      | .. | .. | .. | .. | 85    |
| Family Members    | .. | .. | .. | .. | 104   |
| Ordinary Members  | .. | .. | .. | .. | 1,046 |
| Associate Members | .. | .. | .. | .. | 693   |
|                   |    |    |    |    | <hr/> |
|                   |    |    |    |    | 1,928 |

FINANCE.—The position of the Society as shown in the Financial Statement attached, reveals a very satisfactory state of affairs. The annual grant to Kirstenbosch reached the gratifying figure of £1,067 2s. 8d., which constitutes a record—this after deducting cost of production of the Journal. The investments stand at £1,838 2s. 2d.

MEETINGS OF THE COUNCIL.—Four meetings were held during the year as laid down by the Constitution, and these were well attended. The following office bearers were elected at the Annual General Meeting:

President: Wm. Duncan Baxter, Esq.; Vice-Presidents: J. B. Taylor, Esq., Lady Phillips, and Dr. H. Fourcade. As Members of Council: Dr. L. Bolus; A. H. Cornish Bowden, Esq.; Professor R. H. Compton; F. E. Cartwright, Esq.; W. A. Eaton, Esq.; P. Ross Frames, Esq.; F. A. C. Guthrie, Esq.; Dr. Bennie Hewat; J. D. Keet, Esq.; W. de N. Lucas, Esq.; J. W. Mathews, Esq.; F. W. Metelerkamp, Esq.; Dr. H. A. Moffat; C. J. Sibbett, Esq.; H. C. Starke, Esq.; Miss E. L. Stephens; E. W. McL. Thomas, Esq.

At the first meeting of Council, Mr. F. W. Metelerkamp was elected Chairman and Mr. F. E. Cartwright Hon. Secretary and Treasurer.

JOURNAL OF THE BOTANICAL SOCIETY.—The twenty-third issue of the Society's Journal was published in February, and was issued gratis to Members and Associates. Interesting articles are included in this issue by Mr. F. W. Thorns, Curator of Kirstenbosch; Mr. S. G. Fiedler, on Growing Plants from Seeds; Mr. L. B. Creasey, Member of the Staff at Kirstenbosch; and Miss M. C. Karsten.

JOURNAL OF SOUTH AFRICAN BOTANY.—The thanks of the Society are due to Professor Compton for his valuable assistance in having again acted as Editor of the *Journal of South African Botany*. The third volume (in four quarterly parts) of this scientific publication was issued from Kirstenbosch during the year. Several articles of botanical and general interest were included. Members of the Botanical Society have the privilege of subscribing at reduced rates.

NATURE STUDY TEACHER.—Representations were made by the Council to the School Board for an

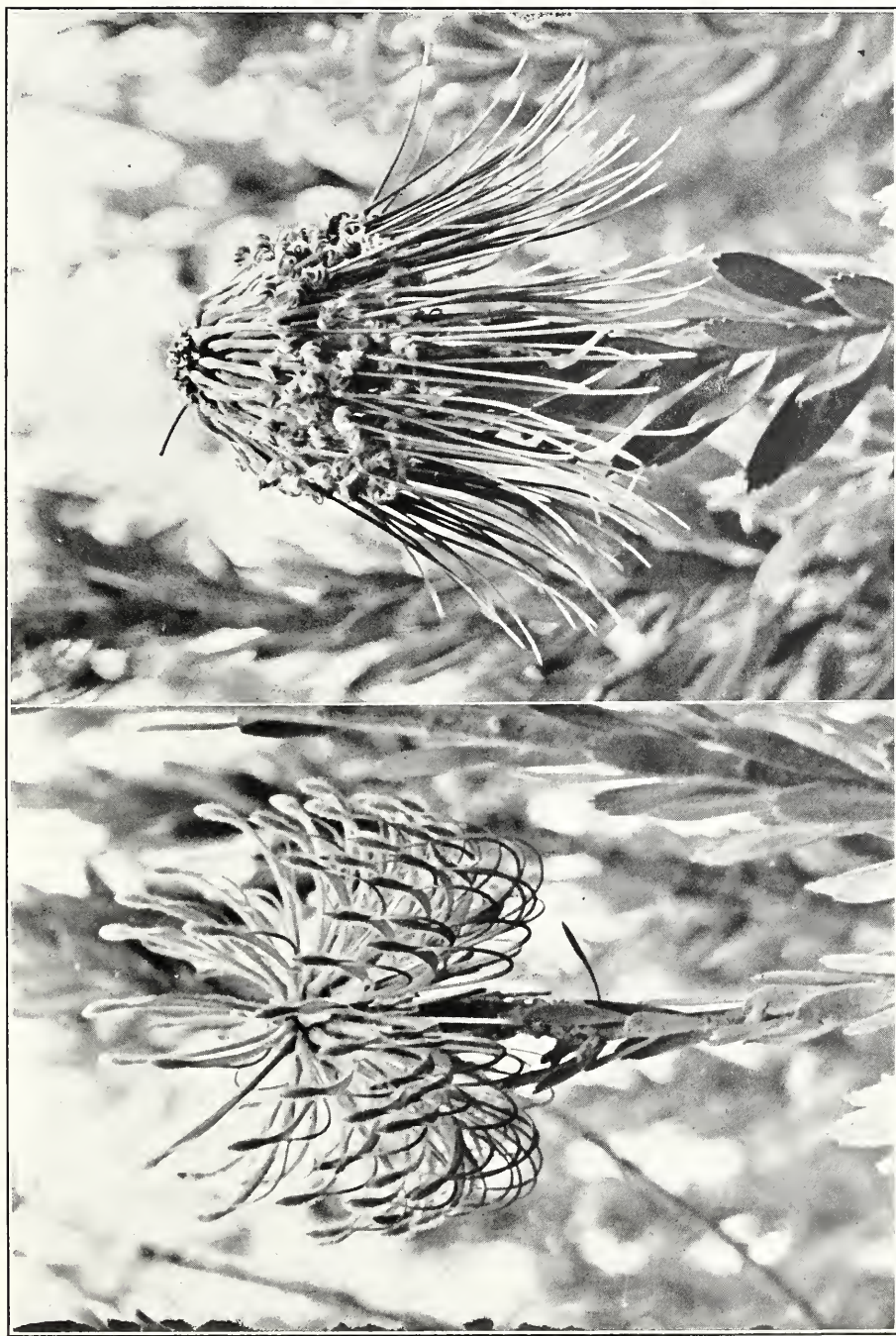


Photo: R. K. Allsop.

PLATE VII. — *Leucospermum reflexum*: beginning and end of flowering.





additional teacher of Nature Study to assist Miss Johns in instructing the hundreds of pupils who attend every week from the various schools in the Peninsula. The Department of Education approved of a second teacher in Miss Marie Thesen, B.Sc., of the University of Cape Town. Due to the funds being allotted by the Government for new buildings in the Gardens, it will now be possible to erect a Lecture Room on a site adjoining the Tea House, having a seating accommodation for 200 people. This will obviate the difficulty of conducting instruction to pupils during rainy weather.

**WILD FLOWER PROTECTION.**—The Council had under consideration an application from the Wild Flowers Protection Conference Committee to accept the control of wild flowers. Certain difficulties arose as to financial responsibility, and in consequence the application was not agreed to and referred back to the Wild Flower Protection Conference to renew the application when a scheme could be formulated to relieve the Society of any financial liability in connection with this additional work.

The Council have agreed to purchase several hundred copies of the brochure on the cultivation of South African Plants written by Mr. J. W. Mathews, formerly Curator of Kirstenbosch, which will be distributed gratis to members during 1938. This publication, it is anticipated, will fill a long-felt want by all members, and forms another valuable addition to the privileges of Members.

**SIR ABE BAILEY'S AND MR. J. B. TAYLOR'S GRANT FOR SHOW CARDS.**—As the result of this joint donation, a most attractive hanging Show Card has been published which calls attention to the desirability of joining the Society and thus to render financial aid to Kirstenbosch. The card carries a view in colours of Kirstenbosch produced from a photograph by Mr. J. P. de Smidt, the colour work being executed by Mr. Twine. Particulars are given on the card as to how Membership can be obtained. Our thanks are due to Barclay's Bank (Dominion, Colonial and Overseas), the Standard Bank, and the Cape Peninsula Publicity Association for their kind offer of free distribution, which ensures a very wide circulation.

**OBITUARY.**—It is with very great regret that the Society has to record the death of three Life Members, namely, Mr. E. R. Syfret, Miss F. M. White, a

Member of the Council, and Miss Edith Struben, a Vice-President and a Member of the Council for many years.

**ANNUAL GATHERING AT KIRSTENBOSCH.**—The Annual Gathering of Members and their guests was held at Kirstenbosch, on Thursday, the 9th September, in the forenoon, some four hundred attending. The weather conditions were ideal and the Gardens looking their best. Refreshments were served, after which the Chairman, Mr. F. W. Metelerkamp (in the absence of the President, Mr. Duncan Baxter), addressed the gathering, followed by Professor Compton, who spoke of the progress in the Gardens during the year, and the works which were in contemplation.

During the year 1937, the Gardens distributed to Members of the Botanical Society and various Institutions, 419 lots of material, comprising:

5,079 packets of seed, 323 cuttings, 337 bulbs, and 495 plants.

The total number of contributions of Plant Material to Kirstenbosch during the year was 2,271 lots of material, comprising:

363 packets of seed, 261 cuttings, 8,400 bulbs, and 3,541 plants and seedlings.

The number of visitors recorded as entering the gates were as follows: Saturday afternoons, 13,563; Sundays, 49,819; Public Holidays, 11,197, being a total of 74,579, making an increase as against last year for these days of 10,300. No records are kept on other days.

The Bolus Herbarium examined 482 specimens from Kirstenbosch during the year, of which 384 were identified as known species, and 29 as new species.

The Annual Report and Balance Sheets of the Gardens for 1936 were distributed to Members and Associates of the Society. The Kirstenbosch and Whitehill Seed Lists were also distributed as usual.

**THANKS.**—The Council would express its indebtedness to the South African Association for the use of their Board Room for Meetings of Council, and to the Press for their co-operation in reporting the proceedings of the Society.

F. W. METELERKAMP,  
*Chairman.*

FRANK E. CARTWRIGHT,  
*Hon. Secretary and Treasurer.*

|                                   | £ s. d.        | £ s. d.            |                                  | £ s. d.        | £ s. d.            |
|-----------------------------------|----------------|--------------------|----------------------------------|----------------|--------------------|
| Life Members' Fund as at          |                |                    | South African Milling Co. Ltd.:  |                |                    |
| 31st December, 1936 . . .         | 630 0 0        |                    | Deposit on Call . . . . .        | 400 0 0        |                    |
| Life Subscriptions, 1937 . . .    | <u>125 0 0</u> |                    | Accrued Interest . . . . .       | <u>7 0 0</u>   |                    |
|                                   |                | 755 0 0            |                                  |                | 407 0 0            |
| Subscriptions paid in advance ..  |                | 55 10 0            | Cape of Good Hope Savings Bank:  |                |                    |
| Subscriptions to Karoo Garden,    |                |                    | Deposit . . . . .                | 464 14 7       |                    |
| Whitehill . . . . .               | 127 6 1        |                    | Accrued Interest . . . . .       | <u>16 4 9</u>  |                    |
| Less Remitted to National         |                |                    |                                  |                | 480 19 4           |
| Botanic Gardens . . . . .         | <u>100 0 0</u> |                    | United Building Society:         |                |                    |
|                                   |                | 27 6 1             | Deposit Account at 3% per        |                |                    |
| Donation—Sir Abe Bailey and       |                |                    | annum . . . . .                  | 523 7 6        |                    |
| Mr. J. B. Taylor for              |                |                    | Accrued Interest . . . . .       | <u>18 13 7</u> |                    |
| Coloured Showcard Issue           | 50 0 0         |                    |                                  |                | 642 1 1            |
| Less cost of production to date   | <u>19 15 6</u> |                    | S.A. Permanent Building Society: |                |                    |
|                                   |                | 30 4 6             | Fixed Deposit 12 mos. to         |                |                    |
| Sundry Creditors:—                |                |                    | 30/4/38 at 4% per annum          | 300 0 0        |                    |
| Speciality Press, Printing        |                |                    | Accrued Interest . . . . .       | <u>8 1 9</u>   |                    |
| Journal . . . . .                 |                | 135 12 10          |                                  |                | 308 1 9            |
| National Botanic Gardens:—        |                |                    | Sundry Debtors:                  |                |                    |
| <i>Surplus for 1937</i> . . . . . |                | 1,067 2 8          | For Advertisements in Jour-      |                |                    |
|                                   |                |                    | nal, Part XXIII . . . .          |                | 34 0 0             |
|                                   |                |                    | Payments in Advance:             |                |                    |
|                                   |                |                    | For Colour Blocks and Print-     |                |                    |
|                                   |                |                    | ing of Plates for Journal,       |                |                    |
|                                   |                |                    | Part XXIV (1938) . . . .         |                | 24 13 5            |
|                                   |                |                    | Cash at Standard Bank . . . . .  |                | <u>174 0 6</u>     |
|                                   |                | <u>£2,070 16 1</u> |                                  |                | <u>£2,070 16 1</u> |

|                                   | £   | s. | d. |  | £      | s. | d. |                               | £   | s. | d. |        | £  | s. | d. |
|-----------------------------------|-----|----|----|--|--------|----|----|-------------------------------|-----|----|----|--------|----|----|----|
| General Expenses .. .. .          |     |    |    |  | 47     | 14 | 2  | Subscriptions:                |     |    |    |        |    |    |    |
| Clerical Assistance .. .. .       |     |    |    |  | 48     | 0  | 0  | Family .. .. .                | 205 | 9  | 0  |        |    |    |    |
| Bank Charges and Exchange .. .. . |     |    |    |  | 7      | 11 | 10 | Ordinary .. .. .              | 897 | 16 | 6  |        |    |    |    |
| Stationery and Printing .. .. .   |     |    |    |  | 50     | 8  | 11 | Associate .. .. .             | 150 | 6  | 0  |        |    |    |    |
| Expenses: Annual Gathering, Kir-  |     |    |    |  |        |    |    |                               |     |    |    |        |    |    |    |
| stenbosch .. .. .                 |     |    |    |  | 26     | 8  | 4  | Donation .. .. .              |     |    |    | 1,253  | 11 | 6  |    |
| Journal, Part XXIII, 1937 .. .. . | 123 | 6  | 8  |  |        |    |    | Sale of Journals .. .. .      |     |    |    | 5      | 0  | 0  |    |
| Less Advertisements .. .. .       | 39  | 0  | 0  |  |        |    |    | Sale of £300—3½% Union Stock— |     |    |    | 0      | 3  | 6  |    |
|                                   |     |    |    |  | 84     | 6  | 8  | Profit on Cost .. .. .        |     |    |    | 13     | 1  | 3  |    |
| Surplus for Year, 1937 .. .. .    |     |    |    |  | 1,067  | 2  | 8  | Interest .. .. .              |     |    |    | 59     | 16 | 4  |    |
|                                   |     |    |    |  | £1,331 | 12 | 7  |                               |     |    |    | £1,331 | 12 | 7  |    |

(Signed) F. W. METELERKAMP, *Chairman.*  
(Signed) FRANK E. CARTWRIGHT, *Hon. Treasurer.*

# THE BOTANICAL SOCIETY OF SOUTH AFRICA.

## OBJECTS:

- (a) To encourage the inhabitants of South Africa to take an active part in the progress and development of the National Botanic Gardens at Kirstenbosch, and the Karoo Garden at Whitehill, and to induce them to appreciate their responsibilities therein.
- (b) To augment the Government grants towards developing, improving, and maintaining fully equipped botanical gardens, laboratories, experimental gardens, etc., at Kirstenbosch and Whitehill.
- (c) To organise shows at which may be displayed the results of botanical experiments or cultural skill in improving the different varieties of South African flora.
- (d) To enlighten and instruct the members on botanical subjects by means of rambles, meetings, lectures and conferences, and by the distribution of literature.

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FOUNDED JUNE 10th, 1913.

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## President:

W. DUNCAN BAXTER, Esq.

## Vice-Presidents:

J. B. TAYLOR, Esq.; LADY PHILLIPS; DR. H. G. FOURCADE.

Chairman of Council: F. W. METELERKAMP, Esq., J.P.

Hon. Secretary and Treasurer: F. E. CARTWRIGHT, Esq. (P.O. Box 267, CAPE TOWN.)

## Council:

|                            |                                |                         |
|----------------------------|--------------------------------|-------------------------|
| Dr. L. Bolus.              | Dr. D. Bennie Hewat.           | W. Olive, Esq.          |
| A. H. Cornish Bowden, Esq. | J. D. Krige, Esq.              | C. J. Sibbett, Esq.     |
| Professor R. H. Compton.   | A. J. Lambrechts, Esq., M.P.C. | H. C. Starke, Esq.      |
| F. J. Duckitt, Esq.        | F. P. Marais, Esq.             | Miss E. L. Stephens.    |
| P. Ross Frames, Esq.       | J. W. Mathews, Esq.            | Capt. C. Struben.       |
| F. A. C. Guthrie, Esq.     | Dr. H. A. Moffat.              | E. W. McL. Thomas, Esq. |

## Terms of Membership:

*Life Members*, subscribing not less than £25.

*Family Members*, subscribing not less than £2 2s. per annum.

*Ordinary Members*, subscribing not less than £1 1s. per annum.

*Associate Members*, subscribing not less than 5s. per annum.

*Associate Members* enjoy all the privileges of Membership except that they do not vote at any of the Society's Meetings. New Associate Members are residents of the Union only.

Honorary Members may be elected at a Meeting of the Society on the nomination of the Council.

All Members have the privilege of sharing in the free distribution of surplus seeds from Kirstenbosch, on application to the Director of the Gardens. The Journal of the Botanical Society, published annually, is sent free to every Member. The Journal of South African Botany can be purchased by Members at reduced rates.

Life, Family, Ordinary and Associate Members who wish to support the Wild Flower Protection section of the Society may give an annual subscription of 5s. per annum in addition to the subscription for the class to which they belong.

Life, Family, and Ordinary Members may pay an additional subscription of 10s. per annum, the proceeds of which will support the Karoo Garden, Whitehill: such Members have the further privilege of receiving seeds from Whitehill as well as from Kirstenbosch.

Those wishing to become Members of the Society are invited to communicate with Mr. F. E. CARTWRIGHT, Hon. Secretary, P.O. Box 267, Cape Town.



# NATIONAL BOTANIC GARDENS

The *Journal of South African Botany* is a scientific periodical published at Kirstenbosch. The annual volume (issued in quarterly parts) consists of about 200 pages of text, and is copiously illustrated with plates and figures. Annual subscription, 20/-; single parts, 6/6. (To Members of the Botanical Society, 15/- and 5/- respectively.)

The **Edward Muspratt Solly Scholarship**, value £100. tenable at Kirstenbosch, is awarded annually for botanical research and study.

## Botanical Specimens

intended for cultivation at Kirstenbosch or Whitehill may be sent free of charge by post or rail from places within the Union, South West Africa, or Southern Rhodesia.

*For those  
who prefer  
a  
filter-tip*  
**Westminster**  
*Filter Tip*  
VIRGINIA CIGARETTES

## The Harold Pearson Memorial Hostel

provides accommodation at economical rates for those who wish to undertake private work in botanical or other natural history subjects at Kirstenbosch.

## THE CAPE NATURAL HISTORY CLUB

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THE JOURNAL OF THE

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BOTANICAL  
SOCIETY

OF SOUTH AFRICA

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Edited by R. H. COMPTON  
M.A., F.R.S.S.Af., Director of the  
NATIONAL BOTANIC GARDENS

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Part XXV. 1939

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KIRSTENBOSCH,  
NEWLANDS, C.P.  
SOUTH AFRICA.

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Published under the authority of the Council of the Botanical Society



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Mrs. Bolus has done her work well and faithfully. All the reward she seeks is a better appreciation of our wealth of flowers and their preservation.—*Cape Times*.

This is a book that should certainly be in the hands of every teacher of botany, biology and nature study and is well worthy of a place in the library of every nature lover.—*The Education Gazette*.

The matter of this volume has been arranged in botanical sequence, and is liberally illustrated by coloured plates and photographs, including illustrations in colour of "Stapelia" and some of its allies. "feeling," says Mrs. Bolus, "that any work dealing with our native flora would be sadly defective if some representation of so important a constituent as the succulents were not included."

Each specimen is dealt with in an exhaustive and readable manner, and the illustrations (paintings by D. Barclay and photographs by E. J. Steer) are exquisitely reproduced. The colour studies in particular enhance the publication a hundred fold, being artistic and natural in the extreme. This book is a necessary addition to any library, and particularly to that of a lover of flowers.—*Pretoria News*.

In its text it is a worthy companion to the first book, which came out eight years ago. In its illustrations it is a finer fellow. Miss D. Barclay has contributed more of her true-to-the-veld water colourings than appear in the first volume. The photographs are again the work of Mr. E. J. Steer.

Flowers are described according to the families to which they belong, and in language stripped of obscure words. And Mrs. Bolus tells the country rambler the very things he wants to know about a flower he finds on veld or mountain — its common name, its botanical name and who first noted and named it, why it grows in some localities and not in others.

Anyone who reads it will not pick a wild flower from its natural haunt, but will feel inspired to walk miles to meet it at home.—*Cape Argus*.

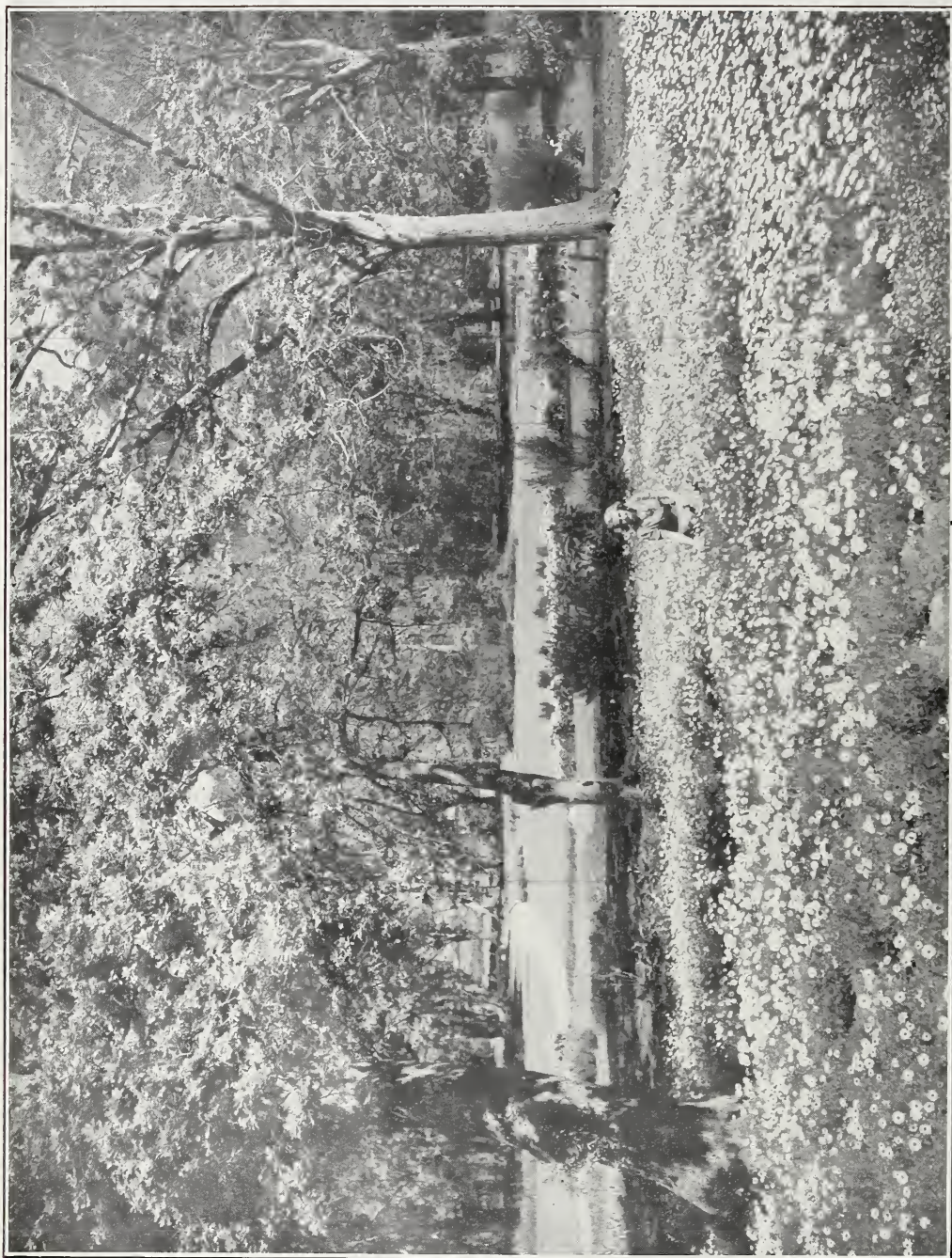
This publication fills a real want especially as its predecessor, "A First Book of South African Flowers" has been out of print for some time. It is issued under the auspices of the Wild Flower Protection Society and is dedicated appropriately to the memory of Sir Lionel Phillips.

There's no need to hand out any praise here because the names of the collaborators are a warrant of quality. But the Specialty Press should be congratulated, I think, on the way they have done their part of the work, on the reproductions of the paintings and photographs, and the delightful general get-up.—*Broadcast Review*.

THE SPECIALTY PRESS OF S.A. LTD., BOX 21, WYNBERG







*Frontispiece: In the New Area at Kirstenbosch.*

*Photo: Cape Times Ltd.*



# The Journal of the Botanical Society of South Africa.

EDITED BY R. H. COMPTON.

PART XXV

1939

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# News and Notes.

THE last two or three years have witnessed many changes at Kirstenbosch, of which one of the most striking is the erection of buildings for the service of the Gardens and for the convenience of visitors. Photographs of some of these buildings are reproduced in this Journal, and Miss J. W. Steytler, the Secretary of the Gardens, contributes an article in which they are briefly described. It is with the greatest pleasure that we record the unfailing kindness and helpfulness displayed by the officials of the Public Works Department in Cape Town and Wynberg and thank them as well as the architects and builders for the excellent work which has been put into the designing and execution of these buildings.

. . . . .

An important step in the scientific development of the National Botanic Gardens has recently been taken by the Trustees, who have decided to establish a Gardens Herbarium at Kirstenbosch. This will be a centre for systematic research and reference, and will in particular have the function of keeping the records of the plants grown in the Gardens, Kirstenbosch and Whitehill. It is emphasised that this Herbarium is not in any way intended to compete with existing herbaria, and indeed it has already received valuable assistance from the Bolus Herbarium by the gift of specimens and books. Its establishment is an entirely natural expression of the scientific functions of the Gardens, and precedents exist in practically every other great Botanic Garden in the world. The new Herbarium will occupy the building originally built for the Bolus Herbarium and recently relinquished by the University of Cape Town on the removal of the Bolus Herbarium to the main University Buildings at Groote Schuur.

. . . . .

The layout and planting of the New Area at Kirstenbosch lying to the south of the new main entrance drive has been almost completed, and our Frontispiece shows a view across this new and attractive part of the Gardens. It may be recalled that funds for this work were provided by a generous donation from Mr. J. B. Taylor.

. . . . .

A considerable amount of work has also been done recently on the lower slopes of Silver Tree Hill, between the old main drive and the rock garden. This area is planted as a Spring Garden and it is here that the brilliant

floral display of annuals takes place from August to October. A permanent layout of paths, drainage, water supply, etc., has been constructed, and numerous trees and shrubs have been planted to relieve the bareness of the slopes in the off-season. Work has begun, moreover, on the extension of the rock work of the Succulent Garden, which is to take place at the eastern end of the existing Garden: this work is being financed by a grant from the Life Members' Fund of the Botanical Society, from which source, it will be remembered, the existing Succulent Garden was constructed. It is also hoped that it will soon be possible to demolish the old cottage, a familiar eyesore on the slope, and to include the whole of this area in one comprehensive layout of Succulent Garden, Spring Garden and Mesembryanthemum Garden.

. . . . .

The Botanical Society has for a long time taken a good deal of unofficial interest in wild flower protection. The original object of the Society was, of course, the support of the National Botanic Gardens: but the functions of Kirstenbosch are so essentially linked with the preservation of the South African flora that it is only natural that the Botanical Society should interest itself in such matters.

Recently the Committee appointed by the Wild Flower Protection Conference which met in 1935, requested the Botanical Society to become the central Society dealing with Wild Flower Protection from the standpoint of the general public. After considerable discussion between the Council and the Committee, the Society at a General Meeting held in December, 1938 decided to adopt the suggestion. Various changes in the Constitution of the Society resulted, and this is printed in revised form in this Journal.

. . . . .

The Society has set up a new section to deal with Wild Flower Protection matters, a special sub-committee of nine members being appointed by the Council. Members of the Society are invited to make an additional subscription of 5s. per annum for the support of the work of this section. Provision is made for the affiliation of local societies with similar objects.

. . . . .

The Wild Flower Protection Ordinances of the Cape Province are somewhat elaborate in form and are not



generally accessible, and a useful purpose will be served by an abstract of their provisions which we publish in this Journal. This has been drawn up by Mr. F. Guthrie and has the concurrence of the Committee of the Wild Flower Protection Section of the Botanical Society.

By kind permission of Mr. F. R. Long, Superintendent of Parks and Town Attractions, Port Elizabeth, we are able to present to Members of the Botanical Society extracts from an address which he recently delivered in Durban to the Association of Superintendents of Public Parks and Gardens, and a photograph taken in the Baakens River Reserve, near Port Elizabeth, which Mr. Long was instrumental in establishing.

We have repeatedly stressed in this Journal the importance of the establishment of nature reserves in all parts of the Union. Mr. Long now points out that such nature reserves are likely to be attractive to tourists; that the "tourist industry" is of great potential value to this country; and that therefore, if for no other reason, nature reserves should be established and fostered wherever opportunity offers.

In the nineteenth century we squandered one of our chief assets in the form of skins and biltong; we are now realising that to conserve wild animal life is better business than to destroy it. Formerly we burnt, uprooted and laid waste our priceless heritage of flora, and it would be difficult to point to any advantage whatever that we have derived from so doing; now we are learning that to conserve our native vegetation in every way possible is not merely sentimentality but is good business from the point of view of all of us. And to the benefits which the vegetation bestows upon us in the way of amelioration of climate, regularisation of water supply, prevention of floods and erosion, and beauty of scenery, we can add the attraction it offers to the tourist.

The Caledon Wild Flower Garden is an example of the benefit which a country town may derive from the utilisation of its natural resources; it is an attraction to tourists who might not otherwise find anything at Caledon sufficient to tempt them to a visit or a break of journey. Incidentally, it may be remarked that if the Caledon Wild Flower Garden delights the visitor nothing horrifies him more than the scandalous condition of the mountains surrounding Caledon; and if he were told that these rubble-heaps were once verdant hills bearing the celebrated Caledon flora, and that they have reached their present deplorable con-

dition through deliberate burning, his opinion of our mentality would not be flattering.

The formation of nature reserves has the hearty approval of the Cape Provincial authorities. His Honour the Administrator, Captain F. Joubert, in the course of his address to the recent Divisional Councils Congress at East London, said:—

"During the last session of the Provincial Council the Nature Reserves Ordinance was passed, empowering local authorities to acquire and maintain nature reserves.

"This legislation resulted from the active interest taken by the Cape Divisional Council in wishing to preserve Cape Point and certain neighbouring farms as a nature reserve.

"That beautiful portion of the Cape Peninsula was in danger of falling into private hands, with the possibility of its being subdivided into building lots. We are grateful to the Cape Divisional Council for the prompt action taken by it.

"This legislation does not apply to the Cape Division only. Any divisional or municipal council or village management board can, on application to me, have its provisions applied.

"I sincerely hope that many local bodies will make use of this Ordinance, thereby assisting in the protection of the flora and fauna of our country."

We cordially welcome this announcement, and we hope that many of the Cape Divisions and Municipalities will take serious note of it and act accordingly.

We offer hearty congratulations to Dr. E. P. Phillips on his appointment as Chief of the Division of Botany and Plant Pathology in the Union Department of Agriculture.

On the retirement of Dr. I. B. Pole Evans the Division of Plant Industry, of which he was Chief, was divided into several sections, each with its own head, and the new Division of Botany corresponds roughly to what it was before the grouping of several divisions under Dr. Pole Evans. Dr. Phillips has for many years been Principal Government Botanist and his activities have included the National Herbarium, Pretoria, and work in connection with the periodicals "The Flowering Plants of South Africa" and "Bothalia." He was President of the Botanical Section of the South African Association for the Advancement of Science at its Caledon Meeting in 1930. His book, "The Genera of South African

Flowering Plants" published in 1926 is one of the most useful works of reference on the flora of the Union. In addition to his botanical work Dr. Phillips has taken a leading part in the organisation and affairs of public servants. We wish him every success in his new post.

. . . . .

Members of the Botanical Society who desire to take advantage of the free distribution from Kirstenbosch and Whitehill are requested to note that it is impossible for the Gardens to undertake to send out plants, bulbs or cuttings; they are therefore asked to confine their requests to seeds. It will assist the work of the Gardens if their requests are sent in by letter as soon as possible after the receipt of the Seed List; and moreover, early applicants are more likely to obtain the seeds they want before supplies are exhausted. The Seed List gives no description of the species mentioned, and Members will do well to consult "A Short Guide to the Cultivation of Non-Succulent South African Plants" by J. W. Mathews (Specialty Press, Wynberg), copies of which were distributed gratis to Members last year, for descriptive details and for hints as to cultivation.

. . . . .

It is with great regret that we record the death of Miss Beatrice O. Carter in November 1939. Miss Carter had been for many years artist on the staff of the Bolus Herbarium, where she devoted herself especially to recording with her skilful pen and brush the details of form and structure of the Mesembryaceae in connexion with Dr. L. Bolus' comprehensive studies of this vast group. We include in this Journal a coloured plate of drawings of various species of Conophytum, drawn by Miss Carter and giving some idea of her painstaking and accurate work.

. . . . .

## JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA:

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Price to Members 2/-. to non-Members 4/-.

Parts XIV, XVII, XVIII. Price to Members 4/-, to non-Members 6/-.

Parts XI, XII, XV, XIX, XX. Price to Members 6/-, to non-Members 8/-.

Parts not mentioned above are out of print.

# Buildings at Kirstenbosch.

By J. W. STEYTLER.

IT has always been realised by the Kirstenbosch authorities that the erection of buildings such as potting-sheds, tool-sheds, glass-houses, a laboratory, dwelling-houses, etc., would add greatly to the efficiency of the work in the Gardens. Owing to the fact, however, that from the time the Gardens were established until the year 1934 money for new buildings and repairs to buildings has had to be provided from the meagre funds at the Trustees' disposal, supplemented by an occasional £ for £ grant received from the Government on funds donated either privately or through the Botanical Society for some specific building, the authorities were able to provide very few amenities of this sort. Since 1935, however, the Government has authorised through the Public Works Department a certain sum of money to be spent annually on buildings and their maintenance, and during this period several buildings which have been urgently required for many years have been completed. It is thought that members of the Botanical Society may like to learn of the

principal buildings which have been erected recently and what purposes they are designed to serve.

A cottage of mountain stone walls with shingle roof has been erected at the new

**Assistant Curator's House.** main entrance to the Gardens. In addition to being

the Assistant Curator's residence it serves some of the purposes of a gatekeeper's lodge. It was designed by the Public Works Department to fit in with the scheme for the new Main Entrance. The cottage consists of a living room, two bedrooms, kitchen, pantry, bathroom, stoep and adjoining garage, and there is an enclosure for a private garden at the back of the house.

On the completion of the new Main Drive from Rhodes Road to the parking area the

**New Main Entrance and Bell Tower.** Public Works Department designed and built entrance gates across the drive. The piers are





# PLATE II. Some Species of Conophytum.

- |  |  |
|--|--|
| A. <i>Conophytum fraternum</i> , N. E. Br., var. <i>leptanthum</i> , L. Bol. | E. <i>C. polyandrum</i> , Lavis.                                     |
| B. <i>C. occultum</i> , L. Bol.  | F. <i>C. Wettsteinii</i> , N. E. Br., var. <i>oculatum</i> , L. Bol. |
| C. <i>C. Herrei</i> , N. E. Br.  | G. <i>C. Nevillei</i> , N. E. Br.                                    |
| D. <i>C. reticulatum</i> , L. Bol.   | H. <i>C. velutinum</i> , Schy.                                       |

Drawings by the late Beatrice O. Carter.





constructed of mountain stone, the gates being of teak. The entrance is set well back from the public road and is flanked by curved stone walls. Separate gateways are provided for the entrance and exit of vehicles, and smaller gates for pedestrians. Stone tablets with incised lettering — NATIONAL BOTANIC GARDENS — KIRSTENBOSCH — NASIONALE BOTANIESE TUIN — are built into the three main piers respectively.

Replacing one of the gate-piers there has been built a bell-tower, also in mountain stone. This, together with its bell (formerly the ship's bell of H.M.S. Dominion) is the gift of Lady Phillips. On a stone tablet is engraved: "*This Bell Tower commemorates the work for Kirstenbosch of Lionel Phillips.*" The design for the bell-tower was the work of the late Mr. Gwelo Goodman. The bell is now used regularly for time-keeping purposes, and will also serve if necessary as an alarm in case of fire.

New gates in a style similar to the main gates have been erected at the Harold Pearson Memorial Hostel and at the old main entrance.

The new drive with its gates, bell-tower and cottage now forms a pleasing feature of Kirstenbosch, and a dignified entrance to South Africa's National Botanic Gardens. The area alongside, which has been laid out with grass lawns and not too formal beds and is designed to link up with the Great Lawn, is gradually becoming one of the most charming parts of the Garden. Kirstenbosch is indebted to Mr. J. B. Taylor for the conversion of this section of the estate from a wilderness of bramble and bush to pleasing lawns and flower beds, for it was with his generous gift of £500 that the Trustees were able to undertake the work.

In order to provide comfort for visitors when weather conditions render the Tea House steep unpleasant, a room to accommodate about twelve tea tables has been built as an annexe to the Tea House.

The room is built of brick and plaster under a thatch roof and is long and narrow with three large windows running down the outside wall and the main doors opening on to a gravelled terrace in front. There is no ceiling and heavy beams run across and up to the open thatch roof. At one end is a large open fireplace of banded mountain stone flanked on either side by teak benches fitted against the wall. The room is furnished with teak tables and chairs, the latter being upholstered in dark green.

A bright fire of Kirstenbosch logs gives this pleasant room a cosy and hospitable appearance on the coldest of winter days and it is proving most popular with visitors.

A room to be used in connexion with Nature Study classes for schoolchildren which are held daily at Kirstenbosch has been erected near the Tea House.

The building is of pleasing design, in conformity with the adjoining Tea House, having cream plastered walls, a thatched roof and a large verandah supported by pillars. An air of loftiness is given to the main room by the fact that there is no ceiling; instead massive beams run across and up to the sloping thatch roof. This room is capable of seating about 120 persons, and is fitted with laboratory benches, cabinets, sinks, lecture tables, screens, etc. There is an entrance hall with cloakroom accommodation, lavatories, and two private rooms for teachers. The Provincial Department of Education provided the necessary equipment.

The chief function of the building is to provide accommodation for Nature Study classes when inclement weather prevents field study. In addition it is used as a museum for specimens collected by the children. It will also be available for lectures and Botanical Society and Gardens functions.

This building, which is situated near to Protea Church, consists of two parts (which can eventually, if necessary, be thrown into one): one section provides accommodation for a married man and the other for four single men.

The building is one-storied with cream plastered walls under a shingle roof, and two tall chimneys. A stoep under a pergola of wooden beams runs along the front of the house. The married quarters consist of a living room with a fireplace, two bedrooms, kitchen, pantry and bathroom. The men's quarters consist of a large living room with a fireplace, four bedrooms, kitchen, pantry and bathroom.

In addition to the above, several smaller buildings have been erected within the last few years. These include a laboratory adjoining the Director's office, a seed-store, stables, potting-sheds, lavatory blocks, and a glass-house and potting-shed for succulents.

There is little doubt that the buildings which have been described here will be a very great asset to Kirstenbosch. The laboratory, potting-sheds, lecture room, etc., will enable the functions of the Gardens to be carried out more efficiently; the residences will provide better accommodation for the staff, and the addition to the Tea House will provide greater comfort for visitors.

# Parks and Publicity.

By F. R. LONG.

IT is my intention to deal with the requirements necessary to attract the visitor, especially the overseas visitor to our towns, more particularly to the smaller towns which do not possess an outstanding, world-wide known attractive feature. It is not my intention to touch upon the publicity side that aims to attract our local people to their own parks, and I do not intend to make any reference to our parks as an asset to our local inhabitants. My endeavour is to indicate the type of attraction that will prove most acceptable to our overseas visitor, and further to indicate what can be done to bring that objective to fruition as far as our profession is concerned.

I make bold to say that the majority of my fellow-superintendents have never seriously considered the immensity of the tourist traffic or the value of the tourist industry to this country, an industry which is going ahead by leaps and bounds. We all have a vague idea that the tourist industry is increasing, and that many more people are now visiting the "high spots" such as the Cango Caves, Mont aux Sources, Kruger National Game Reserve, the Rand gold mines and the Victoria Falls, than was the case a few years ago. We have not perhaps given a serious thought to the fact that these tourists have to pass through our own town; and further we have not fully realised that visitors have to travel many weary and monotonous days and hours before they reach these world-renowned "high spots" of interest. The Government, mainly through their Railways and Harbours Department, have advertised these main attractions in a very efficient manner, and have thereby increased the earning powers of the railway passenger services by conveying visitors to and from these main features. Little has been done, however, to break down that monotony of travelling between these far-distant "high spots," and little has been done to entertain the visitor in between whiles; little has been done to give a sense of real South African life, except here and there, and to present a constant interest during every 24 hours that the traveller is in our midst. It is my purpose to show you how you, as heads of parks and gardens, can assist in obtaining this objective.

Tourism can become the greatest industry in Southern Africa next to the gold mining industry. It benefits

everyone of us indirectly, and it can directly benefit many of our towns, villages and dorps.

During the year 1937, 30,654 tourists and visitors landed in South Africa. The total has very rapidly risen, for in 1934 the figure was 9,038. Now this comparatively satisfactory state of affairs has been encouraged by the efforts of the Advisory Committee of the Publicity Department of the South African Railways and Harbours, the Publicity Department of South Africa House, the local publicity bodies and shipping companies, with a total annual expenditure of round about £50,000.

The powers that be, however, looking with envy at the enormous tourist industry of France (estimated value, £80,000,000 per annum), Switzerland, Australia and other countries, decided that a bigger effort must be made if Southern Africa was to gather its fair share of the world's tourist traffic.

The Government has therefore just brought into existence the "Tourist Development Corporation."

This body or corporation has a secured income of £80,000 per annum, guaranteed for the ensuing 5 years. Its duties are to foster overseas tourist traffic to Southern Africa by lectures, literature, films, press and paper advertisement; it will include improvement of (a) transport facilities by sea, land and air, (b) hotel accommodation, (c) presentation of the places of interest, beauty and amusement, (d) co-operation with the existing local publicity bodies. Its duties, however, do not include the selling of travel, the booking of tours, the building of hotels or any expenditure on places of interest.

The corporation will definitely interest itself in promoting a conscious effort by many authorities to improve the quality of South African attractions at various points of scenic and other interest.

I shall proceed to give you some hints and ideas as to the manner in which members of the horticultural profession could assist if they can obtain the backing of their municipalities or other public bodies under whose control they come.

The type of person now visiting these shores is the type of tourist one meets in France, Germany, Italy and Switzerland. They are mostly people experienced in travel,

\*Extracts from an address delivered to the Association of Superintendents of Public Parks and Gardens, at Durban on 8th August, 1939.



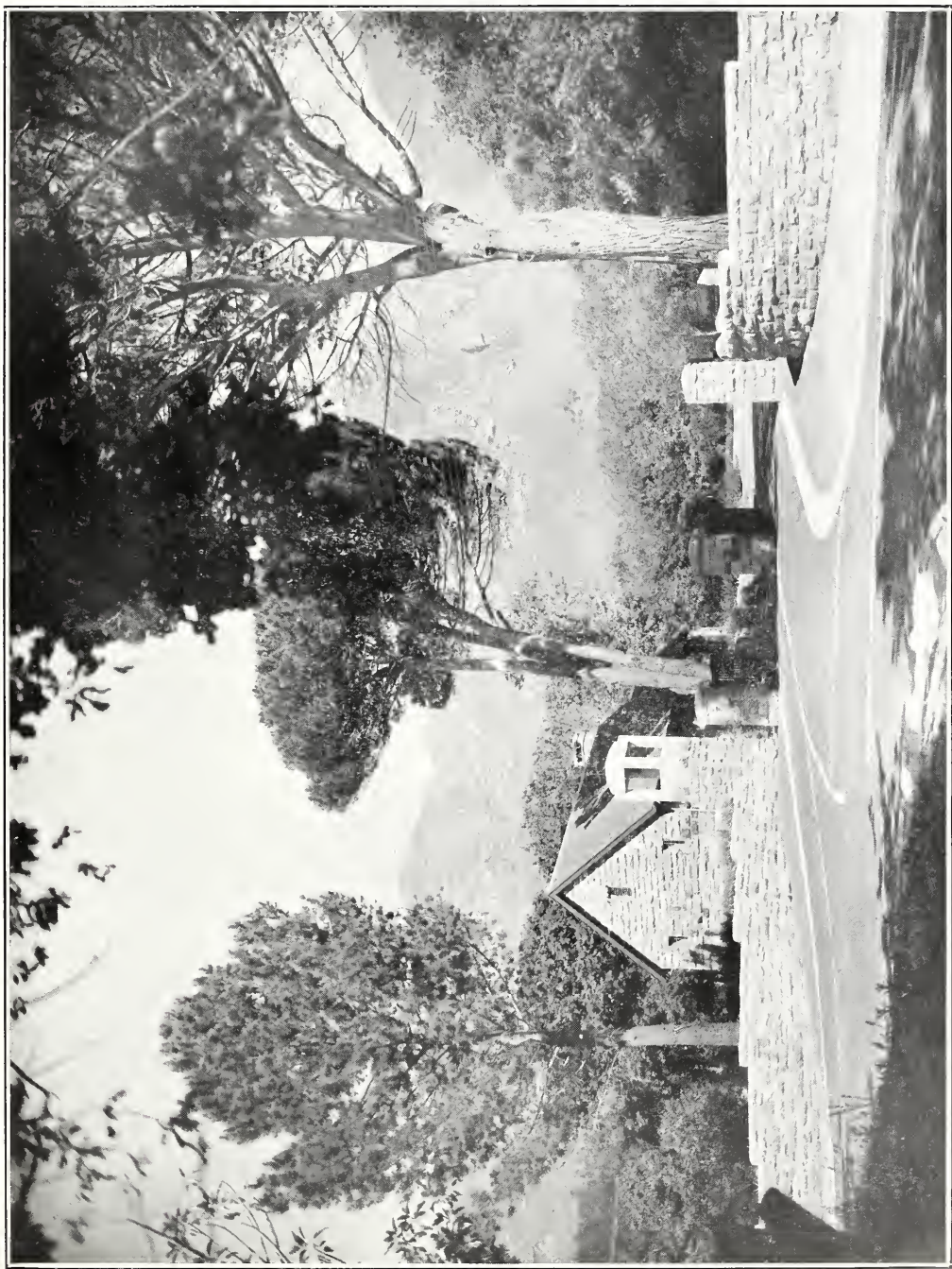


PLATE III: Kirstenbosch: the new Entrance, Bell Tower and Assistant Curator's House.

*Photo: Cape Times Ltd.*





PLATE IV: Kirstenbosch: the new Museum and Lecture Room.

*Photo: Cape Times Ltd.*

they are accustomed to seeing places under comfortable conditions, and they come mostly from Great Britain and the United States of America. They are mostly monied people. So it is obvious that they do not want to see buildings, new or ancient, they do not want to see factories — they have seen better in Europe and U.S.A. — or just pleasure resorts. But what they do want to see (and it is for this reason that they have travelled the extra thousands of miles to come to South Africa) is South African native life and conditions, aborigines in their native districts, wild animals and wild plants, and South African scenery unspoilt by civilisation.

It is our duty as park officials, or so it seems to me, to present wild plant and wild animal life to our visitors in the best way possible, and furthermore to interest ourselves in the preservation of beauty spots and places representing typical South African life if our districts are to secure the benefits of this increased travel.

Local Publicity Associations are found in many towns to attract local and overseas visitors. In many centres considerable sums of money are spent to achieve this object. Often any thought of preserving the local flora and fauna is quite overlooked, usually the many brochures published for distribution to the visitor contain little information or at best poor illustrations of the local flora.

More often than not, a local beauty spot that could be set aside to advantage for the use of tourists has been denuded of the native flora. This should be re-established with plants that were formerly growing there; local or indigenous plants only should be planted and not a mixed medley of all sorts of exotic species. Do not forget that the visitor who is being catered for has seen or can see the well-known garden plants grown to perfection in the large cities of the world; but they cannot see, except in South Africa, the glorious aloes, proteas, heaths, South African bulbs and South African trees, that are, more often than not, neglected by our own selves. Do not, therefore, try and beautify your semi-wild spots with cannas, dahlias or roses. These highly desirable horticultural subjects are best suited to your formal squares and gardens.

Much could be done along the main travel routes for the attraction and interest of the tourist if avenues of local trees or groups of trees were established. There is no doubt that the tourist value of the Pretoria jacaranda trees is very considerable. So also is the Caledon Wild Flower Garden, which has a decided pull on the tourist. The tourist value of the National Botanical Gardens at Kirstenbosch is placed very high, but I fail to see why the noble work carried out at Kirstenbosch could not be repeated in many other parts of our country.

Wild animals and bird life should not be neglected. There is nothing more attractive than to introduce the native buck in suitably fenced off areas. A case in point is the development now taking place in the East London Public Park. Here paddocks to house the local buck are being erected in the indigenous bush, within the park grounds.

It is well to remember that the class of visitor we are catering for has for the most part seen the finest zoological gardens in the world; and, unless such a collection can be presented in the grandest style, such as can be seen in London, Berlin, Hamburg and other large cities, it is a waste of money presenting animal life in small cages or enclosures. But what always gives a thrill is to take your visitor to some wild veld or bush country and there to spy out zebra, the many species of South African buck, or an ostrich apparently running wild.

These conditions are often possible by fencing off a few acres of unwanted ground. An excellent example is the Naval Hill Reserve at Bloemfontein (where by the way I should like to see aloes replacing the exotic agave).

Nature Reserves should be established in every district in Southern Africa, not only for the purpose of amusing our tourist, but also for the preservation of our wild life. To those of us who are interested in wild plants it has already come as a shock to see the steady decline and in some instances the total extinction of many species of plants, never to return. Legislation against this destruction helps; but if nature reserves, small as well as big, were scattered liberally throughout the country many species would be automatically preserved.

It is very pleasing to note that farmers in the Eastern Province, and I daresay elsewhere as well, are establishing herds of springbok, kudu and other species of buck. What an interesting sight it is to pull up on the roadside to watch a herd of springbok for half an hour! It breaks the monotony of a tiresome journey. That is the sort of entertainment our visitors appreciate.

In these days of town planning I have often noticed that if there is a piece of ground too difficult for the engineer or architect to develop as a residential area, it is marked down on the plan "Park" or "Open Space." Some of these spots, far from being hopeless from the superintendent's point of view, can be turned into a reserve for wild animals or local plants, to which the visitor can obtain easy access.

There is great scope in this sort of thing, and much could be done by the rural authorities, which are not to any extent influenced by this Association. I must stress the



importance of developing spots in between the towns as well as within our town boundaries. I wish it were possible that every Divisional Council could employ an official versed in the plant and animal life of their area.

My ambition is to see a chain of smaller nature reserves and beauty spots throughout our land, linking up the "high spots" of the Cape, the Cango Caves, Drakensberg, Kruger National Park, Victoria Falls, etc. If this is achieved, the visitor will go away with a better impression of South Africa and the intervening towns will benefit by waylaying the visitors and keeping them in their midst.

I want for a moment or two to illustrate my point. A party of tourists arrive at Cape Town and proceed to do the delightful Cape, Western Province, Knysna and the Cango Caves. What is their next step? We must prevent them from rushing off to the next high spot — the Drakensberg. We in Port Elizabeth hope that the Elephant Reserve at Addo (where there are 23 head of elephants, the last of the once huge Cape herds) will draw them to our city, but this is a distance of 300 miles of rather dreary country.

What is there of interest in between Oudtshoorn and Port Elizabeth? There could be developed two very interesting centres, namely, Graaff-Reinet and Somerset East. From Oudtshoorn or the Cango Caves to Graaff-Reinet is a distance of 240 miles of rather dreary country, which could be broken by creating reserves at Willowmore and Miller; at the latter place there are several most interesting plants growing near the railway station, including *Lithops terricolor*, or "Stone Plant," *Pleiospilos simulans*, or the "Liver Plant," and many other examples of peculiarly South African flora.

Having reached Miller, it is but a short run of 100 miles to Graaff-Reinet. Now here is a town well worth a visit for its mountainous scenery alone, but in addition to this attraction there is the outstanding "Valley of Desolation"; a more fascinating and awe-inspiring spot it would be hard to find. Leading up to the summit overlooking the valley are hundreds of fine specimens of "Elephant's Feet" (*Testudinaria elephantipes*), a very famous South African plant which should be preserved, cleared and made accessible to the tourist. It is the home of several aloes which the local Parks Curator could extend. This valley could be enhanced as a popular resort if animals were preserved therein, a collection of several species of buck, zebra, etc., could easily be maintained there at little cost. The town itself has already planted some of the traffic islands with local flora; these help to add interest for the tourist. There is also a very nice collection of succulent plants established in a natural rockery near the golf course, close to the

picturesque Van Ryneveld's dam, which in itself could be turned into a waterfowl reserve, no doubt.

From Graaff Reinet it is but a stone's throw (a South African stone's throw, I mean!) of some 78 miles to Somerset East. This stretch is relieved by several interesting places, one of which is Brintjes Hoogte, where the aloes when in flower would make any lover of nature water at the mouth. I recently saw a field of the red and yellow *Aloe microstigma* literally in their thousands, several flower spikes being 6 feet tall. It would take but a small effort to have this area preserved by the owner if only the owner could be made to see the objective in view.

Having reached Somerset East, what is there to see? Very little; and there seems no one to tell the tourist what there is. I am sure Somerset East will forgive me if I presume to set out what can be done to entertain the tourist for 24 hours, as I wish to illustrate the chief point of my lecture by using Somerset East as an example. Now, there are three attractive features that could be developed; these combined would make an attractive lure to the tourist that could not be resisted. First of all, the town is overshadowed by the magnificent pile of the Boschberg, the slopes of which come right down to the streets of the town. Here there is an ideal animal reserve, and, if well stocked with buffalo, buck, zebra, etc., it would create an easily accessible attraction. Secondly, there is a lovely mountain drive to the top of the Boschberg, where in half an hour one can rise from 2,400 feet to 3,750 feet; and from the summit a magnificent view in the four quarters of the compass can be obtained. If a tea-house were built at the top of the Berg overlooking the town, good business should be forthcoming. Thirdly, there is the waterfall on the Glen Avon Estate, a piece of typical South African scenery not easily surpassed and possessing many typical plants of South Africa. The attractions of all three of these places could be enhanced if attention were given by the local Park Superintendent to the preservation and planting of the local flora.

Having spent a very interesting 24 or 36 hours at Somerset East, the traveller would either turn north through Cradock, or, as we hope in Port Elizabeth, he would turn coastward to our City. A trap has already been laid for him in the shape of the Elephant Reserve at the base of the Zuurburg, only some 75 miles distant. This park is now open to visitors during certain months in the year. On the way, however, there are the delightful Zuurburg mountains to cross. This area, although sadly devastated by annual veld fires, can still show delightful heaths, the kaffir-bread tree (*Encephalartos caffer*), the tree composite (*Olden-*



PLATE V: Kirstenbosch: the new Men's Hostel.

*Photo: Cape Times Ltd.*





*burgia arbuscula*), the wild gardenia (*G. Thunbergia*), the wild Streptocarpus (*S. Rexii* and *S. parviflora*), Cape chestnut (*Calodendron capensis*), and the wild Cape honeysuckle (*Tecomaria capensis*) and plumbago growing together, several wild Pelargoniums, Proteas, Mountain Harebell (*Dierama pendula*), many Gladioli, Aloes, etc. Several kloofs and odd corners could be preserved to great advantage. A tourist traffic on this section of the National Road could be built up, fed on interesting views, beautiful plants and rare animals. Of course, this could only be done with the close co-operation of the botanist, park curator and local authorities.

Having reached the Addo Elephant Reserve, it would be only natural for the tourist to carry on another 40 miles in order to reach a first-class hotel on the shores of Algoa Bay, to the benefit of everyone in Port Elizabeth.

This idea of chain reserves can be developed throughout the country. I have merely illustrated my point by stating the methods that could be taken in the area I know best. Going north, say from Aliwal North, it would be a competition between the towns whether the tourist would be enticed N.W. or N.E. Much could be done in many of the towns of the Orange Free State, and I am of the opinion that those towns and districts which make the greatest effort to create nature reserves and places of natural interest would derive much material benefit from the tourist who must pass through their territory on their way to the more famous interesting "high spots," such as the Drakensberg Mountains.

The formation of bird sanctuaries should not be overlooked. This is a form of native life that is specially appealing to the tourist. I have in mind the Heronry at Pietermaritzburg. Here is an old disused brickfield where countless thousands of white egrets and grey herons may be seen daily right in the precincts of the town. Here an enterprising Councillor has erected large perches made of branches over the water for the birds to rest on.

At Kirkwood, not far from the Addo Elephant Reserve and on the banks of the Sundays River about 45 miles from Port Elizabeth, a heronry has come into existence. The owner has closely preserved his farm, and he has allowed no shooting nearby for many years. Here on the river bank, facing east and nesting in some 10 or 12 Acacia trees, are myriads of birds, consisting of the following species: the Darter, Reed Cormorant, White-Chested Cormorant, White-Faced Heron, Blue Heron, Night Heron, Buff-Back Egret, Greater Egret, Wood Ibis, Sudanese Ibis, Yellow-Bill Duck, Pin-Tail Duck, Black Duck, Shell Duck, Moorhen, Egyptian Goose, Jacana or Lily Trotter, and Water Dikkop.

Their nests are as thick as the twigs on the trees, often but a few feet away from the visitor, who may stand and view the arresting community life of these birds on the top of the river bank on a level with the tops of the trees. Down below may be seen the Wild Duck, Moorhens, Wood Ibis, and others, in the river. This amazing collection of wild birds remain in this spot year after year, knowing full well that the kindly owner is their friend and protector. What would I not give to have such an attraction in the Port Elizabeth nature reserve!

We Superintendents at the coast have a special tourist problem to meet. It should be our aim to entice ashore 100 per cent. of the passengers arriving by the boats that tie up to our quays. To accomplish this it would mean that we must have some special attraction to dangle before their eyes. In Port Elizabeth we have the Snake Park, which is world-wide known, and we also have "Happy Valley," a water garden now famous for its collection of water lilies.

We are, however, not resting content with this, for we are developing a nature reserve some 211 acres in extent, only 10 minutes by car from the quayside. Here all the flora found in the district, but largely destroyed, is being re-established and bird life encouraged. It is the intention of the Port Elizabeth Council to create in this small nature reserve a real piece of natural Africa, readily accessible to the tourist. Also in the beautification of our streets, traffic islands and odd corners, a large proportion of the plants used are native plants, which in our opinion are what the overseas visitor delights to look at. In mentioning this I do not wish to leave the impression that the ordinary garden plants are to be neglected. Far from it; a square or a traffic island stocked with any well-grown plants is always a joy to behold, but do not forget that in catering for the overseas tourist you have the whole world to compete with. If such subjects as dahlias or roses are grown, do not forget that these are also grown in Europe and America to perfection; whereas by using our Aloes, Gasterias, and Cape bulbs, you are striking a new note as far as the tourist is concerned, and therefore a note that will be remembered as an outstanding feature of your town.

I hope I have been successful in giving you a few fresh ideas on a subject that perhaps, to some of you at all events, has not hitherto been seriously considered. I think I have introduced this subject to this body of Park Superintendents at the right moment. The whole question of South African Tourism is now being tackled in a very serious manner by the Government, municipalities, shipping and oil companies and all other directly interested bodies,

a lot of money on propaganda is being spent, and it behoves us to see that our town receives its share of the benefits which are bound to accrue. Finally, I am of the firm opinion that all members of our Association should be alive

to the possibilities and opportunities that are there for us to make the best use of.

If I have achieved some measure of success in interesting you on the subject of Tourism as it affects Parks Superintendents, then my efforts have not been in vain.

# The Botanical Society of South Africa.

## CONSTITUTION.

(Revised, December 1938).

### *Name:*

1. The Society shall be called "The Botanical Society of South Africa."

### *Objects:*

2. The objects of the Society are:
  - I. The promotion of the interests of the National Botanic Gardens at Kirstenbosch and such other Gardens as may from time to time be established under the Trustees of the National Botanic Gardens and as may be approved by the Society.
  - II. The preservation of the native flora of South Africa.

The Society therefore endeavours:

- (a) To encourage the inhabitants of South Africa to take an active part in the progress and development of the National Botanic Gardens at Kirstenbosch, the Karoo Garden at Whitehill, and any other Garden that may be established by the Trustees of the said National Botanic Gardens; and to induce the said inhabitants to appreciate their responsibilities therein.
- (b) To augment the Government grants towards developing, improving and maintaining fully equipped botanical gardens, laboratories, experimental gardens, etc., at Kirstenbosch and to make grants to the Trustees in aid of any Garden referred to in the preceding subsection.
- (c) To organise shows at which may be displayed the results of botanical experiments or cultural skill in improving the different varieties of South African flora.
- (d) To enlighten and instruct members on botanical subjects by means of meetings, lectures and conferences, and by the distribution of literature.

- (e) To promote the preservation of the Native Flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

### *Membership:*

3. The Society shall consist of persons who have signified their assent to be members thereof and who have paid the required subscription.

4. There shall be five classes of members:

- (a) Honorary Members.
- (b) Life Members subscribing not less than £25.
- (c) Family Members subscribing not less than £2 2s. 0d. per annum.
- (d) Members subscribing not less than £1 1s. 0d. per annum.
- (e) Associate Members subscribing not less than 5/- per annum (resident in the Union and Rhodesia only).

Associate Members shall enjoy the privileges of membership, but shall not vote at any of the meetings of the Society. Honorary Members may be elected at a meeting of the Society on the nomination of the Council.

Any member of the classes (b), (c) or (d) aforesaid desirous of specially assisting the Karoo Garden at Whitehill, and of sharing in any special privilege which the said Trustees may duly confer in respect of such assistance may subscribe an annual amount of ten shillings in addition to the subscription above prescribed for the class to which he belongs. The amount of such additional subscription less five per cent. for cost of administration shall be devoted to the support of the Karoo Garden at Whitehill.

Any member of the classes (b), (c), (d) or (e) aforesaid desirous of specially assisting in Object II, namely:

The preservation of the Native Flora, may give a minimum annual subscription of 5/- in addition to the subscription above prescribed for the class to which he belongs. The amount of such additional subscription, less five per cent. for cost of administration, shall be devoted to the furtherance of this object.

*Affiliated Societies:*

5. The Society will admit to affiliation Societies having as their aim in whole or in part the preservation of the Native Flora and these shall be known as Affiliated Societies. Any such Society shall contribute towards the funds of the Botanical Society annually a sum of 1/- in respect of each of its members with a maximum of £5, provided that such a Society shall be at liberty to stipulate what part, not exceeding 50 per cent., of the sum thus contributed shall be devoted to the preservation of the Native Flora. An Affiliated Society shall be entitled to send not more than three delegates to General Meetings, such delegates having the right to vote.

*Management:*

6. The organisation shall consist of a President, not more than three Vice-Presidents and a Council consisting of 20 members, all of whom shall be chosen annually at the Annual General Meeting of the Society. The President and Vice-Presidents shall be ex-officio members of the Council.

Any member of the Council resident more than 100 miles from Cape Town shall have the right to appoint an alternate (who must be a member of the Society) to represent him at any meeting of the Council at which he is unable to be present.

7. The Council shall have full control of all the affairs of the Society, and shall have power to appoint a representative or representatives of the Society, as may be required, to act with representatives of the Government and such other bodies as may be agreed upon, as Trustees of the National Botanic Gardens; and to frame such rules and regulations as may be thought to be fit for the conduct of the business of the Society. Such rules and regulations shall not come into force until approved by a General Meeting of the Society.

*Meetings of the Council:*

8. The Council shall meet in Cape Town at least once a quarter. Quarterly meetings shall be held in the first week of March, June, September and December, or at such other times as the Council may decide. One week's notice of all meetings with agenda or the business to be discussed shall be given to each member of the Council.

*Quorum:*

9. Three members shall form a quorum of any meeting of the Council.

*Committee for Preservation of Native Flora:*

10. At the first meeting of the Council after the Annual General Meeting there shall be appointed a special Committee for the Preservation of the Native Flora, consisting of nine Members, which Committee shall be entrusted with the control and management of this branch of the Society's activities as also of the funds specially donated or subscribed for that purpose. The Committee shall annually render a report and statement of accounts to the Council which shall be embodied in the Annual Report and Financial Statement of the Society.

*Allocation of Funds:*

11. The following funds shall be devoted exclusively to the promotion of the object of the Society in paragraph 2.I. hereof, namely (i) all funds derived from the classes of members in paragraph 4.(b), (c), (d) and (e), and (ii) any voluntary donations made for this purpose.

The funds for the promotion of the object of the Society in paragraph 2.II. hereof shall be derived solely (i) from the special subscriptions mentioned in paragraph 4; (ii) from the contributions of Affiliated Societies as mentioned in paragraph 5; and (iii) from any voluntary donations or grants made for this purpose.

*Control of Funds:*

12. The Council shall have the sole power to deal with all funds payable to the Society, but at the commencement of each financial year shall make a fair estimate of what sum will be required to carry on the work of the Society and fairly and fully to carry out all its objects, and after deducting also (i) the nett amount earmarked for the Karoo Garden at Whitehill and any other garden under paragraph 2.I., and subject to the payment of any grant specially made to such garden in terms of paragraph 2(b), and (ii) all funds specially earmarked for the purpose mentioned in paragraph 2.II., shall grant the remainder to the Trustees of the National Botanic Gardens for the support of Kirstenbosch.

All subscriptions from life members shall be invested and only the annual income from the same shall be paid into the General Fund, until such time as the capital sum may be required for some permanent improvement at Kirstenbosch when the Council shall have the power to pay over the capital sum to the Trustees; provided that a majority of members of the whole Council shall have agreed thereto at a meeting duly called.



*Annual General Meeting:*

13. The Annual General Meeting of the Society shall be held in March of each year at such time and place as the Council may determine after giving to members fourteen days' notice and a copy of the agenda.

Business at the Annual General Meeting shall be:

- (a) Annual Report of the Council.
- (b) Financial Statement.
- (c) Election of President, Vice-Presidents and Council of Representatives.
- (d) Consideration of notices of motion (such notices shall be submitted to the Council three weeks prior to the date of the Annual General Meeting).

No other business than that on the agenda shall be transacted.

Any member, however, after the transaction of the business on the agenda, may, with the permission of the chair, bring forward any matter for discussion without previous notice being given.

14. The quorum of all General Meetings, special or otherwise, shall be 10.

If a quorum be not present the meeting shall stand adjourned, until such time and place as the Council may determine.

The President for the time being, or in his absence, one of the Vice-Presidents, shall preside at any General Meeting, and if the President and Vice-Presidents be absent, the meeting shall elect one of the members to be Chairman.

*Special General Meeting:*

15. A Special General Meeting of Members may at any time be called by the Council and shall be called at such time as the Council may decide on the receipt of a requisition to the Council signed by at least 20 members. Such requisition shall state specially the reason for such meeting and the matters to be discussed. If no quorum be present the matter shall drop.

No other business than that for which the special meeting is called shall be transacted.

*Change in Constitution:*

16. The constitution shall in no way be varied, altered or annulled, except by a two-thirds majority of the members present and voting at an Annual General Meeting or at any Special General Meeting called for the purpose and in either case one month's notice of a motion so to vary, alter or annul the constitution shall be given.

## RULES.

1. The financial year of the Society shall be from the 1st January to 31st December.

2. Members' subscriptions are due and payable on the 1st January in each year, and must be paid by the 30th September, provided that new members joining the Society after September 30th in any year, and having paid their subscriptions will not be liable for any further subscriptions until the end of the following year.

3. Any member who wishes to resign from the Society must give notice of his intention to do so on or before the 31st December in any year.

4. The Council shall have the power to refuse or cancel membership. In case of membership being cancelled the member in question shall have the right to appeal to the whole Council.

5. The Council shall elect from amongst their number a Chairman, Vice-Chairman, Honorary Secretary and Honorary Treasurer, and shall have power to appoint sub-committees for any special object and to delegate to such sub-committees the functions and powers of the Council relating thereto.

6. Any member of the Council absenting himself from

the Council for four consecutive meetings without leave shall vacate his seat. The Council may grant leave of absence to any of the members of the Council for such period as the Council may deem fit.

7. In the event of any vacancy occurring on the Council after the annual appointment by the Society the Council shall have the power of filling such vacancy.

8. One or more auditors shall be elected annually, at the Annual General Meeting or at such other meetings as may be called specially for the purpose, who shall examine the books and accounts of the Society and report thereon annually. Should no auditor be elected or should any vacancy occur, the Council may nominate the auditor or fill any vacancy.

9. There shall be at least two ordinary meetings of the Society in each year for the reading of papers and other communications on subjects of botanical and horticultural interest. At least one of these shall be held at Kirstenbosch.

10. No addition or alteration shall be made in the rules of the Society except by resolution at a General Meeting, and after not less than one month's notice of such addition or alteration.



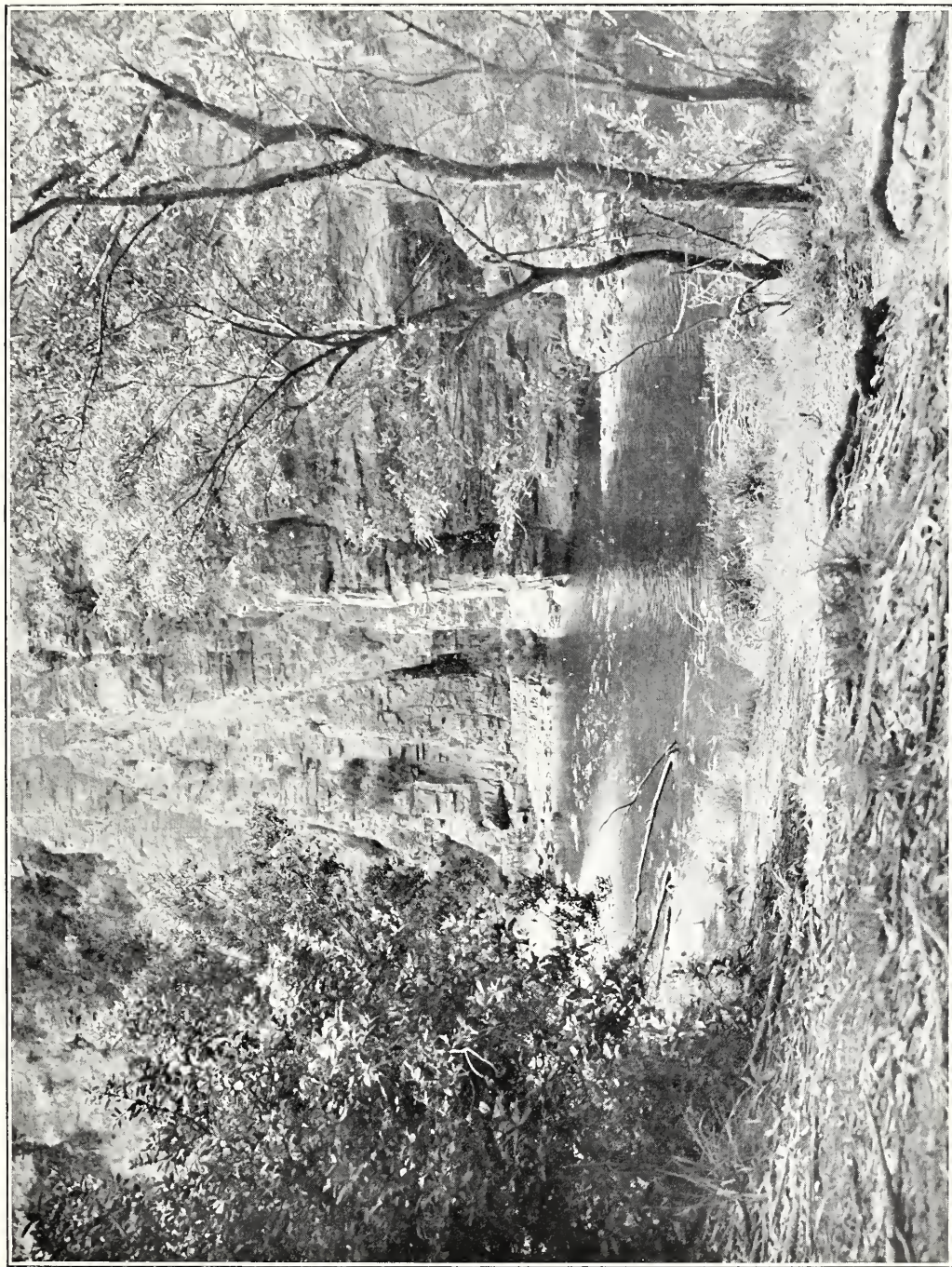


PLATE VI: In the Baakens River Nature Reserve, Port Elizabeth.

*Photo: W. H. B. Woodhouse.*





## THE BOTANICAL SOCIETY OF SOUTH AFRICA.

## ANNUAL REPORT, 1938.

In presenting this, the Twenty-fifth Annual Report of the Proceedings of the Society, the Council have pleasure in reporting a year of steady progress.

The Membership of the Society stands at:

|                   |         |       |
|-------------------|---------|-------|
| Life Members      | .. .. . | 85    |
| Family Members    | .. .. . | 108   |
| Ordinary Members  | .. .. . | 1,026 |
| Associate Members | .. .. . | 715   |
|                   |         | <hr/> |
|                   |         | 1,934 |
|                   |         | <hr/> |

**FINANCE.**—The financial position of the Society as revealed in the Balance Sheet, Revenue and Expenditure Accounts, is satisfactory. Our Annual Grant to Kirstenbosch fell somewhat short of last year's contribution (which constituted a record), due primarily to the cost of publication of Mr. J. W. Mathew's Hand Book on South African Plants, of which the Society made themselves responsible for 2,000 copies, and to the costs of the Jubilee Celebrations at Kirstenbosch. Each Member of the Society received a copy of Mr. Mathew's Hand Book gratis. There have been many expressions of appreciation from members in respect of this contribution, and it is anticipated it will bring its own reward. The investments of your Society amount to £1,873 1s. 5d.

**MEETINGS OF THE COUNCIL.**—Four meetings, as laid down by the Constitution, were held during the year under review and were attended by the majority of members at each meeting. The following office bearers were elected at the Annual General Meeting held on the 17th May last year:

*President:* W. Duncan Baxter, Esq.

*Vice-Presidents:* J. B. Taylor, Esq., Lady Phillips and Dr. H. G. Fourcade.

*As Members of Council:* Dr. L. Bolus; F. W. Metelerkamp, Esq.; Professor R. H. Compton; C. J. Sibbett, Esq.; E. W. McL. Thomas, Esq.; Dr. Bennie Hewat; Capt. Chas. Struben; F. P. Marais, Esq.; F. W. Duckitt, Esq.; F. E. Cartwright, Esq.; F. A. C. Guthrie, Esq.; H. C. Starke, Esq.; Miss E. L. Stephens; Dr. H. A. Moffat; P. Ross Frames, Esq.; W. Olive, Esq.; A. J.

Lambrechts, Esq.; A. H. Cornish Bowden, Esq.; J. W. Mathews, Esq.; J. D. Krige, Esq.

At the first meeting of Council held on the 21st June, Mr. F. W. Metelerkamp was re-elected Chairman, and Mr. F. E. Cartwright, Hon. Secretary and Treasurer.

**JOURNAL OF THE BOTANICAL SOCIETY.**—The Twenty-fourth part of the Society's Journal was published in December, and following the usual procedure, copies were sent to all members of the Society, also to all the leading Botanic Gardens of the world. This forms the means of a useful exchange with other similar Institutions whose publications are added to the Library at Kirstenbosch. Appreciations are constantly being received from other Institutions to whom the Journal is sent. This number of the Journal constituted a Silver Jubilee Number, and gave full particulars of the various events which took place in connection with the Anniversary. The thanks of the Society are due to Professor Compton for his valuable assistance in editing this publication.

**WILD FLOWER PROTECTION.**—During the year the Council had under consideration an application from the Wild Flower Protection Conference Committee to take control of matters in connection with the preservation of the Native Flora of South Africa. This proposal, at first, met with a certain amount of opposition, primarily on the score of expense, it being pointed out that it would be impossible to agree to any encroachment on the funds granted to Kirstenbosch by the Society. Later, the matter was re-introduced in an amended form which safeguarded the funds of the Society and allowed these, as heretofore, to be granted in full to Kirstenbosch. A separate section dealing with the protection of Wild Flowers was formed, the necessary funds to be raised by an additional voluntary subscription payable by such members and associations as may desire to support Wild Flower Protection. The alteration to the Constitution to validate this was approved of at a Special General Meeting of Members held on the 13th December.

**JUBILEE CELEBRATIONS.**—This year, being the 25th anniversary of the establishment of the Botanical Society and Kirstenbosch, the Council deemed it advisable to hold a number of functions to celebrate this event. His Worship

the Mayor (Councillor W. C. Foster), very kindly gave a Banquet at the Muizenberg Pavilion on the 7th of September, 1938. Their Excellencies the Governor-General and Lady Duncan, The Hon. the Minister for the Interior, The Trustees of the National Botanic Gardens, the Council of the Botanical Society, the Staff of Kirstenbosch, City Councillors, and a large number of distinguished guests were present. Speeches were delivered by His Worship the Mayor, His Excellency the Governor-General (Sir Patrick Duncan), Mr. W. Duncan Baxter (Chairman of Trustees), the Hon. R. Stuttaford (Minister for Interior), Mr. F. W. Metelerkamp (Chairman of Council), and Dr. Lam, a member of the party of Netherlands Biologists travelling through the Union. The Annual Gathering of Members at Kirstenbosch took the form of a special reception held on Friday, 9th September. Invitations were sent to all Members of Parliament, Members of the Provincial Council, Divisional and City Councillors. Speeches were made by Mr. F. W. Metelerkamp, Professor R. H. Compton, Director of the National Botanic Gardens, and General the Rt. Hon. J. C. Smuts, Minister of Justice. Refreshments were served to the visitors, after which members of the Garden Staff conducted parties round to point out the more interesting parts of the Gardens.

Another event in connection with the Celebrations was an Essay and Poster Competition for School Children. Many entries were received in both competitions. The Society entertained to Tea about 200 Scholars representing the Schools which had sent Nature Study Classes to Kirstenbosch. Other members of the Gardens personnel were also entertained. The coloured workmen received an invitation to Supper, and their families were given a Party in the Paddock. The natives received a small present.

In last year's Annual Report, reference was made to the new Lecture Hall for Nature Study pupils. Due to

the funds being allotted by the Government for new buildings, it has been possible to erect a Lecture Room having seating accommodation for 200 people; this building is now in course of construction, and it is hoped that it will be completed by May of next year, thus obviating the difficulty of conducting Classes during the rainy season.

OBITUARY.—It is with very great regret that the Society has to record the death of two Life Members, namely, Sir Hugh Levick and Sir Harry Graumann.

GENERAL.—During the year 1938, the Gardens distributed to Members of the Botanical Society and various Botanical Institutions, 490 lots of material consisting of 5,614 packets of seed.

The total number of contributions of Plant Material to Kirstenbosch during the year was 1,609 lots of material comprising 2,509 plants; 129 cuttings; 2,201 bulbs and 309 packets of seed.

218 plants, including 22 new species, were identified by the Botanical Assistant at Kirstenbosch and by the Bolus Herbarium.

The number of visitors recorded as entering the gates were as follows: Saturday afternoons, 17,044; Sundays, 60,610; Public Holidays, 12,959; being a total of 90,613, making an increase as against last year for these days of 16,034. No records are kept on other days.

THANKS.—The Council begs to express its indebtedness to The South African Association for the use of their Board Room for Meetings of the Council, and to the Press for their co-operation in reporting the proceedings of the Society.

F. W. METELERKAMP,  
*Chairman.*

FRANK E. CARTWRIGHT,  
*Hon. Secretary and Treasurer.*

## THE BOTANICAL SOCIETY OF SOUTH AFRICA.

## BALANCE SHEET as at 31st DECEMBER, 1938.

|  | £   | s. | d. | £      | s. | d. |                                  | £   | s. | d. | £      | s. | d. |
|--|-----|----|----|--------|----|----|----------------------------------|-----|----|----|--------|----|----|
| Life Members' Fund as at 31st December, 1937   | 755 | 0  | 0  |        |    |    | South African Milling Co., Ltd.: |     |    |    |        |    |    |
| Life Subscriptions, 1938   | 50  | 0  | 0  |        |    |    | Deposit on Call                  | 400 | 0  | 0  |        |    |    |
|  |     |    |    | 805    | 0  | 0  | Interest Accrued                 | 7   | 0  | 0  |        |    |    |
| Subscriptions paid in advance  |     |    |    | 54     | 10 | 1  |                                  |     |    |    | 407    | 0  | 0  |
| Subscriptions to Karoo Garden, Whitehill:—   |     |    |    |        |    |    | Cape of Good Hope Savings Bank:  |     |    |    |        |    |    |
| Balance at 31st Dec., 1937   | 27  | 6  | 1  |        |    |    | Deposit                          | 480 | 19 | 4  |        |    |    |
| Received 1938  | 86  | 11 | 6  |        |    |    | Interest Accrued                 | 16  | 16 | 0  |        |    |    |
|  |     |    |    |        |    |    |                                  |     |    |    | 497    | 15 | 4  |
| Less—Remitted to Kirstenbosch  | 113 | 17 | 7  |        |    |    | United Building Society:         |     |    |    |        |    |    |
|  | 100 | 0  | 0  |        |    |    | Deposit Account at Interest      |     |    |    |        |    |    |
|  |     |    |    | 13     | 17 | 7  | 3% per annum                     | 642 | 1  | 1  |        |    |    |
| Sundry Creditors—  |     |    |    |        |    |    | Interest Accrued                 | 18  | 3  | 3  |        |    |    |
| Specialty Press, Printing  |     |    |    |        |    |    |                                  |     |    |    | 660    | 4  | 4  |
| Journal, Part XXIV   | 128 | 0  | 5  |        |    |    | S.A. Permanent Building Society: |     |    |    |        |    |    |
| Specialty Press, Printing  |     |    |    |        |    |    | Fixed Deposit 12 months to       |     |    |    |        |    |    |
| Mathews' "S.A. Plants"   | 68  | 0  | 10 |        |    |    | 30th April, 1939, at 4% p.a.     | 300 | 0  | 0  |        |    |    |
| Others—Postage "S.A. Plants" to Members, etc.  | 14  | 17 | 3  |        |    |    | Interest Accrued                 | 8   | 1  | 9  |        |    |    |
|  |     |    |    | 210    | 18 | 6  |                                  |     |    |    | 308    | 1  | 9  |
| Donation—Sir Abe Bailey and Mr. J. B. Taylor: Coloured Show Card Issue—Balance in hand |     |    |    |        |    |    | Sundry Debtors:                  |     |    |    |        |    |    |
| National Botanic Gardens—  |     |    |    |        |    |    | For Advertisements in Journal,   |     |    |    |        |    |    |
| Surplus for 1938   |     |    |    | 6      | 7  | 7  | Part XXIV                        |     |    |    | 26     | 5  | 0  |
|  |     |    |    |        |    |    | Cash at Standard Bank            |     |    |    | 51     | 3  | 6  |
|  |     |    |    | 859    | 16 | 2  |                                  |     |    |    |        |    |    |
|  |     |    |    | £1,950 | 9  | 11 |                                  |     |    |    | £1,950 | 9  | 11 |

## REVENUE and EXPENDITURE ACCOUNT for the 12 MONTHS ended 31st DECEMBER, 1938.

|  | £   | s. | d. | £      | s. | d. |                       | £   | s. | d. | £      | s. | d. |
|--|-----|----|----|--------|----|----|-----------------------|-----|----|----|--------|----|----|
| General Expenses   |     |    |    | 45     | 10 | 2  | Subscriptions—        |     |    |    |        |    |    |
| Clerical Assistance  |     |    |    | 48     | 0  | 0  | Family                | 180 | 16 | 0  |        |    |    |
| Bank Charges and Exchange  |     |    |    | 7      | 6  | 11 | Ordinary              | 887 | 2  | 0  |        |    |    |
| Stationery and Printing  |     |    |    | 47     | 9  | 2  | Associate             | 165 | 0  | 0  |        |    |    |
| Expenses — In connection with Silver Jubilee Celebrations at Kirstenbosch    | 53  | 1  | 7  |        |    |    |                       |     |    |    | 1,232  | 18 | 0  |
| Proportion charged to Annual Gathering                                       | 27  | 16 | 2  |        |    |    | Donations             |     |    |    | 2      | 6  | 0  |
|  |     |    |    | 80     | 17 | 9  | Sale of Journals      |     |    |    | 2      | 2  | 4  |
| Journal, Part XXIV, 1938   | 145 | 19 | 4  |        |    |    | Interest Account      |     |    |    | 60     | 19 | 3  |
| Less—Advertisements  | 31  | 5  | 0  |        |    |    | Postcard Publication— |     |    |    |        |    |    |
|  |     |    |    | 114    | 14 | 4  | Royalties received    |     |    |    | 4      | 16 | 7  |
| Mr. J. W. Mathews' "S.A. Plants"—Cost of 2,000 copies and posting to Members |     |    |    |        |    |    |                       |     |    |    |        |    |    |
| Wild Flower Protection — Preliminary Expenses (circularizing Members, etc.)  |     |    |    |        |    |    |                       |     |    |    |        |    |    |
| Surplus for Year, 1938   |     |    |    | 12     | 11 | 1  |                       |     |    |    |        |    |    |
|  |     |    |    | 859    | 16 | 2  |                       |     |    |    |        |    |    |
|  |     |    |    | £1,303 | 2  | 2  |                       |     |    |    | £1,303 | 2  | 2  |

Audited and found correct in accordance with the Books and Vouchers of the Society.

W. A. HICKS, Auditor.

Cape Town, 26th April, 1939.

(Signed) F. W. METELERKAMP, Chairman.

(Signed) FRANK E. CARTWRIGHT, Hon. Treasurer.



# List of Members of the Botanical Society.

(LIFE MEMBERS:

FAMILY MEMBERS:

Ordinary Members:

Associates.)

The star (\*) indicates Members who are also Subscribers to the Karoo Garden, Whitehill.

The cross (†) indicates Members who are also Subscribers to the Wild Flower Protection Section.

In case of any inaccuracy in the following list it is requested that notification should be made to the Hon. Secretary, P.O. Box 267, Cape Town.

*Honorary Members:*

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†MATHEWS, J. W.

PEARSON, MRS. H.

H. W.

SEWARD, PROF. SIR

A. C.

**A.**

Abbey, W.

ABBOTT, W. C.

Aberconway, Lord

†Abernethy, Miss O.

Abrahams, Chief Rabbi

Israel

Ackerman, Miss A.

Ackerman, D. J. J.

Ackerman, Mrs. G.

Ackermann, Mrs. H. D.

Adams, Mrs. E. V.

Adams, Miss G. U.

Adams, Mrs. R. P.

Adamson, Mrs. D. A.

†ADAMSON, PROF. R. S.

Adendorff, Mrs. P. J.

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Akerman, Mrs. C.

AKERMAN, C.

Albow, I.

Albrecht, C. W.

Alderson, Miss D.

Aldridge, K. W.

Alexander, Mrs. J.

\*ALI, H.H. PRINCE

MOHAMED

ALICE, H.R.H. PRIN-  
CESS, COUNTESS  
OF ATHLONE.

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Allschwang, H.

Allen, Mrs. A.

Allison, J.

Allison, Mrs. J.

Allister, R.

Alston, Mrs. L. R.

Anderson, Dr. C. T.

†\*Anderson, Colonel Sir

L.

Anderson, Capt. W. W.

Anderson, E. J.

Anderson, Mrs. E. J.

Andrag, P.

Aniel, Mrs. R. W.

†Aplin, Mrs. H. D.

Appleyard, Mrs.

Arbuthnot, Mrs. A. J.

Arbuthnot, Miss I.

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\*Archibald, Mrs. L. I.

Archibald, Miss E.

Armstrong, Major H.

W.

Armstrong, Mrs. W. H. H.

ASHTON, Dr. M. L.

Askew, F.

Attwell, Mrs. C.

Augustus, I. S.

**B.**

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Babbs, Mrs. A. T.

Bac, Miss E. E.

Bacon, Lt.-Col. A. D.

Bacon, Mrs. A. D.

Bagshawe, Mrs. F.

\*Bailey, Sir Abe, Bart.

Baillie, Mrs. B. M.

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Bain, W. G.

Bain, Mrs. W. G.

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Balfour, A. P.

†\*Ballantine, Dr. A. J.

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Barclay, L.

Barclay, W. S.

Barker, Mrs. W. J.

Barker, Miss W.

†\*BARLOW, C. B.

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†Barlow, W.

BARNARD, PROF. T.

T.

Barnes, H. D.

Barnes, Mrs. C. M.

†Barnett-Clarke, Mrs. G.

M.

BARRETT, P. N.

†Barry, Mrs. A. J.

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Barton-Smith, P.

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Basson, Miss M. M.

Basson, N. J.

Basson, Mrs. S. M.

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Bates, J. T.

†\*Baumann, Mrs. F. E.

†BAXTER, W.

DUNCAN.

BAXTER, MRS. W.

DUNCAN

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Bayly, Mrs. A. M.

†\*Beard, Miss H.

†Beard, H. R.

Beattie, Sir J. C.

Beck, Lt.-Col. A. A.

Beck, Mrs. A. A.

Beechey, Rev. T. J. J.

BEECHROFT, E. E.

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†Benjamin, Mrs. L. E.

Bennet, H.

Bennet, Mrs. H.

Bennett, A.

\*Bennett, W. H.

\*Bennett, Mrs. W. H.

†\*Bennie, W. G.

Benson, E.

Bergh, Miss J. C.

\*Bernard, Mrs. M. E.

Berning, F. S.

†BERRY, H. O. W.

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Bertie, Hon. A. M.

Bertram, Mrs. M. E.

Beverley, Miss M.

Bezuidenhout, W. J.

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Bickford-Smith, Mrs. J.

O.

Biesenbach, Miss M.

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Bingham, Mrs. H.

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Bird, M. C.

BIRT, REV. R. H. C.

Bishop, P. J. G.

Bisset, F.

\*Bisset, W. M.

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Blackburn, H. W.

Blackburn, Miss L. M.

Blackburn, T. H.

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†\*Blake, H. G.

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\*Blandy, Mrs. G.

Blankenberg, Lady

Blathwayt, Mrs. G.

†BLEEK, MISS D. F.

Bligh-Wall, Mrs. E. O.

Bloch, N.

†Blohm, Rev. W.

Blumberg, D. A.

Blumenfeld, Miss M.

Bock, Miss S.

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†Bodenstein, Dr. H. D.

J.

Bohling, Mrs. E.

Bohling, Miss R. V.

Bok, Hon. Mr. Justice

W. E.

Bolling, Mrs. E. T.

Bolton, E. J.

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Bond, W. P.

Bond, Mrs. W. P.

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Borcherds, Mrs. J. S.

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\*Boscawen, Lt.-Col.

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†BOTH, Mrs. F.

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Botha, Miss S.

Bothner, Mrs. C.

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Bourke, Miss M.

Bourne, Lady

†Bowden, A. H. Cornish

Bowen, J. W.

Bowles, W.

Bowley, Mrs. M. A.

Boyce Thompson South

Western Arboretum.

Boyd, H. C. W.

BRACKHAN, A.

Branford, Paymaster

Commander

Bray, Mrs. W. M.

Bredasdorp Wild

Flower and Hort.

Society.

Breen, L. E.

Bremer, Mrs. K.

Brett, Mrs. G. A. F.

\*Bridgman, H. M.

†Briggs, Mrs. A. C. R.

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Brimble, L. A.

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\*Britten, Miss L. L.

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Brock, Miss M. E.

Broderip, E. F.

Bromley, Mrs. R.

Brooke, Brig.-Gen. C. R.

Ingham

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\*Brown, Mrs. B. E.

Brown, J. R.

Brown, Mrs. M. G.

Brown, Mrs. M.

†\*Brown, R. C.

Brownlee, Lt.-Col. J. I.

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Brydone, R. R.

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Buchanan, G. O.

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BUDDIE, J. K.

Buhr, H.

Bull, Rev. C. E. S.

Bull, Miss H. O.

†Bullen, A. H.

Buller, A. C.

BULLEY, A. K.

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†\*Butcher, H. J.

†BUTCHER, W.

Byron, Capt. L.

**C.**

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\*Callenfels, J. E. J.

Calvino, Comm. Prof.

Mario

Cambridge Hort.

Society

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†Campbell, Mrs. F. M.

Campbell, Miss K.

Campbell, Prof. W.

Campbell, Mrs. W.

Canning, E. J.

CAPE HORTICULTURAL

SOCIETY.

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*Carstlaw, Miss R. M.*  
*Carter, Miss E. S.*  
*Carter & Co., Geo.*  
†\*Cartwright, F. E.  
†Cartwright, Mrs. J. D.  
CASE, MISS M. R.  
Castle, F.  
Cave, *Miss E.*  
Centhivres, Mrs. F. v. d.  
S.  
†MUNICIPALITY OF CERES.  
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Chalmers, J.  
†Chalmers, Mrs. J.  
Chamberlain, Dr. C. J.  
CHAMBERLAIN, MISS  
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Chappell, Sir Ernest  
Chase, N. C.  
Cheeseman, H.  
Cheetham, Miss C. A.  
Chenoweth, Miss A. K.  
Chenoweth, Mrs. R. H.  
Chisholm, D. B.  
Christian, H. B.  
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Churchill, Mrs. F.  
Cillie, Dr. G.  
Cillie, Miss M. H.  
City Tramways Co.,  
Ltd.  
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Clark, H. J.  
CLARK, SIR W. H.  
Clark, W. E.  
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Clarke, D. C. I.  
\*Clarke, Miss E. V.  
Clarke, Mrs. J. B.  
\*Clarke, Col. S. R.  
Clarkson, Miss G. E.  
Clarkson, T. E.  
Clegghorn, Mrs. B. H.  
Cloete, Miss C.  
Cloete, Miss E.  
Cloete, Capt. L. D'Urban  
†CLOETE, Mrs. H.  
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Cloete, Mrs. P. A. M.  
Cloete, Mrs. R.  
CLOSE, ADV. R. W.  
\*CLOUGH, M.  
Clovelly Country Club.  
Clutterbuck, Mr.  
Coaton, Mrs. E.  
Cochrane, C.  
Cocker, H. R.  
CODRINGTON, F. C.  
Coetzee, Mrs. H. P.  
Coudrey, R. G.  
Cole, Dr. A. H.  
Collegiate School for  
Girls, Port Elizabeth.  
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†COLTON, Mrs. W.  
\*Combrink, W. G.  
COMPTON, A. G. W.  
†\*Compton, Prof. R. H.  
Congdon, A. E.  
Connolly, Mrs. M.  
\*Conradie, D. J.  
Conrieri, P.  
CONSTANT, B.  
Cook, Miss A. D.  
†Coombs, Mrs. A. C. M.  
Coombs, Mrs. J. W.  
COOPER, A. M.  
Cooper, Mrs. M. B.  
Copenhagen, Mrs. J. W.  
Corder, C. S.  
Cottelle, E. C.  
Coudrey, Mrs.  
Coulter, Mrs. G. H.  
Couper, Mrs. E. H.  
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\*Cowen M.  
†Cooch, Capt. O. A.  
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†Craigie, A. L.  
Crampton, Rev. W. M.  
Cranborne, Lady  
Cranch, Mrs. W.  
Cranna, Mrs. R.  
Crawford, Mrs. W. H.  
Creasey, L. B.  
Crider, F. J.  
Cripps, Mrs. G.  
Crosby, J. H.  
Crowthor, Mrs. L. D.  
Cruickshank, W.  
Cuenod, Mrs. M.  
Cumming, Miss J. C. D.  
Cummins, Mrs. M. C.  
Cunningham, C. M.  
Curler, Mr. Justice  
J. S.  
CURREY, Miss M. H.  
†Currey, Hon. H. L.  
Currey, W. A.  
Curren, Mrs. M.  
Curtis, H.  
Cuthbert, Mrs. W.  
\*Cutler, W. J.  
D.  
Dahlem Botanical  
Museum.  
Dale, Miss E.  
Dale, Mrs. H. R.  
Dallas, Mrs. I.  
†Dallas, Mrs. L. F.  
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Darter, Mrs. M. J.  
Davey, H. J.  
\*Davidson, Lady  
Davies, C.  
Davies, Mrs. E. G.  
Davies, Mrs. H. P.  
Davies, Mrs. M. E.  
Davis, G. A.  
\*DAVIS, P.  
Davis, Mr. Justice R.  
P. B.  
\*Deaf, Principal, School  
for, Worcester.  
De Beer, Mrs. A. A.  
De Beer, Mrs. A. C.  
De Beer, Mrs. N. L.  
De Jager, Miss I.  
De Kantzow, Miss P.  
De Kock, Mrs. J. A.  
De Kock, C. G.  
De Kock, K.  
Delbridge, Miss  
De Mole & Kisch.  
Denbury, H. F.  
†Denniston, Mrs. A. W.  
†\*Denny, G. A.  
†\*Denny, Mrs. W.  
Dent, Mrs. C. H.  
DE PASS, A. A.  
†De Ruitcr, J.  
De Villiers, The Lady  
De Villiers, Mrs. B.  
De Villiers, Mrs. D. G.  
De Villiers, D. L.  
De Villiers, Mrs. E. X.  
De Villiers, I.  
De Villiers, Mrs. J. E.  
De Villiers, Mrs. J. S.  
De Villiers, Mrs. L.  
DE VILLIERS, MRS.  
LOCHNER  
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De Villiers, S. B.  
†De Villiers, Miss W.  
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De Waal, Mrs. T. J.  
De Wet, Miss C.  
De Wet, C. P. E.  
Dick, Mrs. R. E.  
Dickinson, H. T.  
Diggle, Major P. G. W.  
Divine, Mrs. F.  
Dockrall, A. W.  
Dockrall, Mrs. A. W.  
DOCKRALL, T. A.  
Dockrall, Miss T.  
Dodd, B. H.  
Doidge, F. W.  
Dommissie, Dr. F. H.  
Donald, Miss E. M.  
Donaldson, Mrs. A. G.  
Donaldson, Mrs. S.  
Dormer, F. C.  
Dormer, T. C.  
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DOSE, W. K.  
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Douglas, Mrs. R. W.  
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†Downing, Lt.-Col. H. C.  
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Dreyer, Miss V.  
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†Duckitt, F. J.  
†Duckworth, J. E. H.  
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Dugmore, C. M.  
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Duminy, Mrs. F.  
Duminy, Mrs. J. K.  
Dumsday, E. S.  
Dumsday, Mrs. E. S.  
Duncan, G. A.  
Duncan, Mrs. G.  
†DUNCAN, H. E. LADY  
Duncan, T. H. M.  
Dunsdon, H.  
Du Plessis, Miss M. J.  
†Durban Corporation.  
DURBAN & COAST HOR-  
TICULTURAL SOCIETY.  
Durban Municipal  
Library.  
DURBANVILLE, MAYOR OF  
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Duthie, T. H.  
\*Du Toit, Dr. A. L.  
Du Toit, J. C. P.  
†\*Du Toit, J. P. S.  
†\*Du Toit, Dr. J. S.  
Dyason, E. C.  
E.  
East London, Muni-  
cipality of  
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Eastman, Mrs. A. E.  
Eastwood, Miss A.  
Eastwood, Miss M.  
Eastwood, Miss N.  
\*EATON, W. A.  
\*Eccles, Mrs. G.  
Eccles, J. H.  
Eckstein, Miss H.  
†\*Eddie, J.  
Edgar, Prof. C. S.  
Edmondson, Mrs. A. W.  
†Edwards, Miss G.  
\*Egerton of Tatton,  
Lord  
Egling, Mrs. A. E.  
†Eldred, H. W.  
Ellenberger, R. M.  
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Elliott, Mrs. K. C.  
Ellis, Mrs. A. M.  
Ellis, Mrs. E. J. A.  
†Ellis, Mrs. L. E.  
Ellis, Mrs. M.  
Ellis, Miss M. Pope  
Enslie, Miss M.  
Engelenberg, Mrs. F. V.  
Erlank, Mrs. A. E.  
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Espin, Mrs. C. E.  
Esterhuysen, Miss E.  
Esse, Mrs. J.  
Ethelston, Mrs.  
European Primary  
School, Diep River.  
Evans, Capt. D.  
Evans, Mrs. W. V.  
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- (b) To augment the Government grants towards the developing, improving, and maintaining fully equipped botanical gardens, laboratories, experimental gardens, etc., at Kirstenbosch and Whitehill.
- (c) To organise shows at which may be displayed the results of botanical experiments or cultural skill in improving the different varieties of South African flora.
- (d) To enlighten and instruct the members on botanical subjects by means of rambles, meetings, lectures and conferences, and by the distribution of literature.
- (e) To promote the preservation of the Native Flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

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THE JOURNAL OF THE

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**BOTANICAL**  
**SOCIETY**  
**OF SOUTH AFRICA**

Edited by R. H. COMPTON  
M.A., F.R.S.S.Af., Director of the  
NATIONAL BOTANIC GARDENS

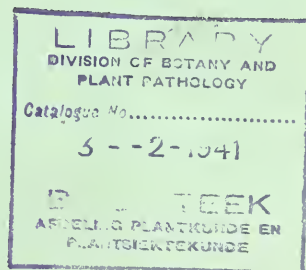
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KIRSTENBOSCH,  
NEWLANDS, C.P.  
SOUTH AFRICA.





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*Photograph: Cape Times.*

PLATE I: The Tea House at Kirstenbosch.

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# The Journal of the Botanical Society of South Africa.

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EDITED BY R. H. COMPTON.

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PART XXVI

1940

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## PLATES.

Frontispiece: The Tea House at Kirstenbosch.

Plate II: South African Haemodoraceae. (Drawings by Miss W. F. Barker, B.Sc.).



# News and Notes.

IT might be expected that the War would make a considerable difference to the membership of the Botanical Society; so far, however, very little change is noticeable, and we are grateful to all those Members who, in these days of increased taxation and innumerable claims upon them for purposes arising out of the War, are maintaining their subscriptions in support of the Society and the National Botanic Gardens. It may be recalled that during the War of 1914-1918, when the Society was young and small, the total membership actually increased from 352 at the beginning of the War to 436 at the end. The Gardens have come through many difficulties in the past, largely owing to the continued and increasing support of the Botanical Society; and we feel that we can rely on the Society to do its best in whatever the future may bring.

. . . . .

The staff at Kirstenbosch has been seriously depleted by the departure of members on active service. Mr. A. J. Middlemost, the assistant Curator, has joined the S.A. Engineering Corps; Mr. L. de Villiers is in an Anti-Aircraft Brigade; Mr. A. H. Fairall is also in the S.A. Engineering Corps. Miss J. W. Steytler, Secretary, is in the clerical branch of the Women's Auxiliary Army Service: in addition, Mr. M. P. S. Holloway, Patrolman, has been recalled to Police duties, and Miss M. Thesen, Teacher of Nature Study, is doing army nursing. Some of the coloured workmen have also left to join the forces.

The Trustees have undertaken to reinstate those who have gone on active service on their return, and in the meantime are making up their military pay to the amount of their salaries.

It has not been possible to fill all the temporary vacancies so caused, but Mr. S. R. Schreiber has been appointed as a Gardener, Mr. J. J. Pelsaert as Estate Foreman, and Mrs. W. Handley-Smith as Secretary; and the work has been arranged to meet the emergency as well as possible, so far with satisfactory results.

. . . . .

Financial exigencies have resulted in the cancellation by the Government of various proposed new works at Kirstenbosch and Whitehill, and it is clear that we shall have to rest content with what we have for the present as far as building is concerned. Fortunately during the last few years

it has been possible, thanks to Government assistance through the Public Works Department, to remedy the acute building deficiency under which Kirstenbosch had suffered for so long, and the Gardens are now much better able to carry on their work than they would have been if the crisis had come five years ago.

. . . . .

As foreshadowed in last *Journal*, the building at Kirstenbosch previously occupied by the Bolus Herbarium is again in use. The Gardens Herbarium has been installed there since the beginning of 1940 and is in a vigorous state of growth. Its value for reference and records and as a botanical centre for the Gardens and for systematic research is already clear and will become increasingly so as the new institution develops.

. . . . .

The Right Hon. Sir James Rose-Innes, P.C., K.C.M.G., has retired from his seat on the Board of Trustees of the National Botanic Gardens, to which he had been appointed as one of the Government representatives. The Trustees in a Minute resolved to record "their deep appreciation of the interest which he had taken in the work of the National Botanic Gardens, and the constant and valuable services he had rendered to the Board since his appointment in 1924." Sir James had previously relinquished his position as President of the Botanical Society, an office which he had held continuously since 1914. (See this *Journal*, 1937.)

. . . . .

It is with great regret that we record the death, which took place in August, of Lady Phillips, a Vice-President of the Botanical Society. Those who remember the establishment of Kirstenbosch in 1913 can testify to the energy and enthusiasm which Lady Phillips devoted to the preliminary work in collaboration with her husband, the late Sir Lionel Phillips. She maintained her interest in Kirstenbosch throughout, and one of her last actions was to present the belfry at the main entrance in memory of her husband's work for the Gardens. South African botany is also deeply indebted to Lady Phillips for her active participation with Sir Lionel in making possible the publication of Dr. R. Marloth's work "The Flora of South Africa."



Dr. J. Burtt-Davy, whose death took place in August, played an important part in the development of the Government Botanical Department in which he at one time held the post of agrostologist, being responsible for the introduction to this country of teff and other valuable grasses.

His Presidential Address to Section C. of the South African Association in 1917 was the start of the movement for a Botanical Survey, which was adopted by the Advisory Board of Industries and Science, a body in which he played an active part.

After a period of practical agriculture and seed growing on his farm near Vereeniging he left for England and devoted himself to his work on the Flora of the Transvaal. This was a return to plant systematics, for before coming to South Africa he had written the Cyperaceae and Gramineae in Jepson's Flora of Western Middle California. Two parts of the Transvaal Flora were published out of the four planned, Burtt-Davy both doing the work and financing the publication. The last years of his life were devoted to building up the Department of Forest Botany in the Imperial Forestry Institute at Oxford University. He contributed various papers on South African plants to the Journal of South African Botany, the last being published this year.

Miss Dorothy Barclay, who died in August, was an accomplished artist whose paintings of South African flora were among the best studies of these subjects that have ever been made. They were reproduced in large numbers for the Wild Flower Protection Society, and were the means of inculcating an appreciation of our flora in the schools and elsewhere. Many of them were used in the "First and Second Books of South African Wild Flowers" in which Dorothy Barclay collaborated with Mrs. L. Bolus and Mr. F. J. Steer. She was also responsible for delightful paintings of Kirstenbosch which were reproduced as picture post cards; one of these appeared in this *Journal* in 1931.

The University of Cape Town has conferred the degree of LL.D. *honoris causa* upon Mr. W. Duncan Baxter, the President of the Botanical Society and Chairman of the Trustees of the National Botanic Gardens, on Dr. D. Bennie Hewat, a member of the Council of the Botanical Society, and on Mr. W. G. Bennie, Dr. H. J. van der Bijl, Dr. E. Barnard Fuller and Mr. F. K. Wiener who are all Members of the Society. Cordial

congratulations are offered to the recipients of this high honour, which comes as recognition of distinguished public services.

Mr. G. W. Reynolds, who is well known to members of the Botanical Society as an authority on Aloes, delivered a public lecture in Cape Town on September 10th. He screened a large number of photographs in natural colours, principally of Aloes, and all of admirable technical quality. The lecture, which was organised by the Botanical Society, was well attended by members and their friends and by high school pupils, and hearty thanks are due to Mr. Reynolds for a most interesting evening. The grateful thanks of the Society are also rendered to the Council and Principal of the Cape Technical College in whose hall the lecture was delivered.

A letter has been received from Miss M. C. Karsten, who writes from Holland through the International Red Cross. Miss Karsten is the author of the series of three articles on Thunberg which were published in the 1939 volume of the Journal of South African Botany, but which were left unfinished owing to the War. She now writes that she will soon have finished the fourth and concluding article, and it is to be hoped that means will be found of sending it to this country to complete this interesting publication.

Miss Karsten was on the point of sailing for South Africa when the invasion of Holland took place. It is good news to hear that she is safe and sound and is continuing her horticultural work.

In the 1939 issue of this *Journal* was enclosed a leaflet issued by Captain C. Struben on behalf of a Committee of the Botanical Society; this was in connection with a collection of colour drawings of Cape wild flowers which are being made by Mrs. Garrett Rice with a view to the production of a book. The number of plates aimed at is 300; many of these include drawings of more than one species, so that the total number of wild flowers depicted will probably be about 600. Mrs. Garrett Rice is working continuously on the project, and nearly three-quarters of the drawings are now complete; it is hoped to conclude the work during 1941. Captain Struben appealed for funds to purchase the drawings and it is satisfactory to state that the greater part of the sum necessary has been subscribed. Further particulars can be obtained from

Captain Struben (Nederberg, Talana Road, Claremont, C.P.), Miss K. Murray (Palmiet River, Elgin, C.P.), or from the Hon. Secretary of the Botanical Society, and subscriptions to complete the fund for purchase will be gratefully received.

. . . . .

The subject of compost making has recently become prominent among gardeners and agriculturists, in view of the pressing need for the maintenance of soil fertility and the vital importance of humus. Mr. F. W. Thorns, Curator of Kirstenbosch, has written an article giving the results of his experience in this connection; this is published in a later page, and will be read with great interest by all who desire a healthy and fertile garden.

[\*] [\*] [\*] . . . [\*] [\*]

Miss W. F. Barker, Botanical Assistant at Kirstenbosch, is publishing a monograph on the genus *Dilatis* in the current volume of the *Journal of South African Botany*. She is also engaged on a monographic study of the allied genus *Wachendorfia*. Both genera include species of considerable decorative value and are worthy of the attention of gardeners interested in growing native plants. The family to which they belong, the *Haemodoraceae*, is also of great botanical interest; and for these reasons Miss Barker has kindly written a general account of it in this *Journal*, her paper being accompanied by a plate of illustrations of the South African genera.

. . . . .

The *Journal of South African Botany*, published at Kirstenbosch, has now completed its sixth volume, and is well established as a medium for the publication of original research and articles on South African botanical subjects. Each volume (which appears in four quarterly parts) consists of about 200 pages, including a large number of illustrations from photographs and line drawings. The subscription for the *Journal* is 20s. per volume post free, and members of the Botanical Society have the privilege of obtaining it at 15s. per annum. Back numbers are available at the published price. For further information application should be made to the Director, Kirstenbosch, Newlands, C.P.

. . . . .

The decision of the Botanical Society to establish a new section to deal with Wild Flower Protection (see

this *Journal*, 1939, p. 2), has proved popular with Members, nearly 300 of whom have paid the additional subscription (5s. minimum) in support of the work of this section. The report of the sectional committee for 1939 is printed on a later page, and during 1940 also it has a record of useful work which will be laid before the Society later.

. . . . .

The Cape Wild Flower Protection Ordinances have admittedly improved matters in certain directions, but serious criticism can be levelled at the unequal and half-hearted way in which they are enforced. They provide for — and indeed necessitate — the appointment of inspectors to stop hawking, to control the sale of protected varieties and to regulate the activities of the nurseries for which they provide licences; but so far no regular inspector has been appointed, and the work is left to the well-meaning but sporadic and inexperienced efforts of the police. The Wild Flower Protection Section of the Botanical Society has been making strong recommendations to the Administrator on this subject and hopes that practical steps may be taken to implement the excellent but, in present circumstances, ineffectual provisions of the Ordinances.

. . . . .

The need of fuel in country towns has caused great destruction among native shrubs and trees. In the coastal belt it is well-known that bush fires are often caused with a view to subsequent collection of dead firewood. In the inland areas the strips of trees along the rivers are being denuded faster than they can regenerate. The results — namely the acceleration of erosion and the spoiling of natural beauty, — are deplorable. The problem is a difficult one, but may be soluble by economic means, that is, the provision of an alternative and cheaper source of fuel. The Botanical Society has taken up the question of the lowering of freights on coal for domestic consumption in country towns, but it is informed by the Railway Department that nothing can be done. It has also recommended that local authorities (who can obtain tree transplants at extremely cheap rates from the Forest Department) should be further encouraged, by means of Provincial subsidies, to grow plantations of quick growing trees for fuel production; to this suggestion also the Cape Provincial Department has found itself unable to accede. Meanwhile the destruction of our vegetation continues and every one of our country towns is surrounded by an ever increasing zone of denudation spreading far away into the mountain kloofs and along the river beds.

*Miss M. E. Johns, Teacher of Nature Study at Kirstenbosch, contributes the following note:*

Visitors to Kirstenbosch often comment on the presence of children doing nature study, field botany or field biology, according to their age or interest. On rare occasions the work has been belittled, insinuations being made that book study is far more important than investigating the living plant and animal. The majority, however, seem envious of the opportunities that about 30 of our local schools have to send classes to Kirstenbosch.

In 1938, a second assistant was appointed by the Cape School Board so that instead of one teacher managing a group of between 60 and 70 children, the number could be halved. This meant that not many extra schools could be invited to send classes to Kirstenbosch but it was an important step towards the ideal of giving every child in the Peninsula an opportunity of regular visits to the Gardens to supplement their nature knowledge with real nature study.

In 1939 a large lecture hall was erected near to the Tea House, and the Trustees of the Gardens have placed it at the disposal of the two teachers, and the Cape Education Department have supplied the furniture. In addition, several cases, which the Education Department used at the Empire Exhibition, have been placed in the hall and are used for exhibits of pictures and actual specimens of seasonal interest. Two microscopes and some apparatus for experimental work have meant that during inclement weather classes can be kept happily occupied.

Funds for an epidiascope are slowly being collected, £1 0s. 11d. being the amount now in hand. The most urgently needed requirement of the majority of the children visiting the Gardens is a free bus service from their schools to and from Kirstenbosch. With a free bus service many more of our children would have an opportunity of regular visits for that important study of living things in a garden which has a tradition very dear to the hearts of all South Africans.

Members of the Botanical Society who desire to take advantage of the free distribution from Kirstenbosch and Whitehill are requested to note that it is impossible for

the Gardens to undertake to send out plants, bulbs or cuttings; they are therefore asked to confine their requests to seeds. It will assist the work of the Gardens if their requests are sent in by post-card, giving serial numbers only, as soon as possible after the receipt of the Seed List; and moreover, early applicants are more likely to obtain the seeds they want before supplies are exhausted.

Back numbers of the Journal of the Botanical Society (with certain exceptions) can be obtained from the Hon. Secretary; the prices were given in the 1939 Journal or can be furnished on application.

We regret that owing to the great increase in cost of printing, especially in the cost of art paper, it is necessary to reduce the number of illustrations in this issue of the *Journal*.

A few copies of Mr. J. W. Mathews' book "The Cultivation of Non-Succulent South African Plants" are still available, price 1s. 6d. post free, on application to the Hon. Secretary.

The volume "Our South African Flora" with its hundred coloured illustrations (distributed in packets of cigarettes) and eight full page plates, has had a very great success, an astonishing number of copies having been sold. The text, in both official languages, is a South African botanical handbook in brief, and is proving of educational value in schools and universities. It contains a section on systematics (which is illustrated by the pictures) and others on the ecology of the vegetation and the general biology, evolution and geographical distribution of the plants of the Union. The illustrations are almost all photographs of specimens grown at Kirstenbosch; they represent, as Kirstenbosch does, all parts of South Africa and all the most important families of plants which make up its flora. We cordially congratulate the firms responsible for the production for their enlightened enterprise and for the technical excellence of the volume.



# The South African Genera of the Haemodoraceae.

By W. F. BARKER.

LITTLE has been written about the South African genera of the Haemodoraceae and plants are seldom if ever seen in our gardens. They scarcely merit such neglect, for most of the species are attractive from an horticultural point of view, and botanically they are extremely interesting.

The family may be described as being in a state of flux for it has been looked upon by workers on the petaloid monocotyledons as a convenient refuge for some of those genera which they find difficult to place elsewhere.

Seven South African genera have been included in the family at one time or another, though never all at the same time. They are *Wachendorfia*, *Dilatria*, *Barbetta*, *Lanaria*, *Cyanella*, *Sansevieria* and *Pauridia*. They comprise a group of plants differing widely in many respects, and indeed it is difficult to find a single generic character which is common to them all. It is not surprising, therefore, that in classifications based on different sets of characters authors have found it necessary to put them into other families with which they individually show some slight affinity and that occasionally even new families have had to be created.

Of the seven genera previously mentioned the first three have always been included in the Haemodoraceae and as the family name implies they all have "blood-roots," a character which none of the other genera possess. Bentham and Hooker as well as Baker in the "Flora Capensis" include all but *Pauridia* in the family, placing it in the Amaryllidaceae. Phillips and Thonner remove *Cyanella* and *Lanaria* to the Amaryllidaceae and put *Sansevieria* into the Liliaceae. But the most satisfactory classification is that of Hutchinson. He places *Pauridia* in the family Hypoxidaceae with *Hypoxis* and its allies, and this seems to be its natural position despite the fact that it has only three stamens. He promotes *Cyanella* to a new family the Tecophilaeaceae where it is associated with certain tropical and American genera, and *Sansevieria* has been removed to the Agavaceae, the four remaining genera comprising the Haemodoraceae as represented in South Africa.

*Sansevieria* is the only one among the seven genera which is known to occur outside South Africa, the rest

being endemic and often quite localized. Five species of *Sansevieria* are known to occur in South Africa and of these, two were collected by Burchell in his travels. These two species or plants so similar as to be almost indistinguishable also occur in Ceylon, and *S. zeylanica* (Plate II D) known as the "Bow-string Hemp" was introduced into England by way of Holland as early as 1731 though the genus was only named by Thunberg in 1794. Plants were extensively grown in Europe chiefly for their peculiar decorative banded foliage, for they seldom if ever flowered; and in the United States to-day *Sansevieria* almost rivals the *Aspidistra* in popularity as an indoor pot plant.

The South African species extend from Uitenhage in the Eastern Province to Natal and the Transvaal. They are hardy and easily grown and at least two of them, *S. thyrsoflora* and *S. zeylanica*, are sometimes found in odd corners in South African gardens.

A. *Wachendorfia paniculata*. Burm. 1. Flower, front view. 2. Flower, side view. 3. Three upper perianth segments, back view. 4. Lateral perianth segment, back view. 5. Lower perianth segment, back view. 6. Gynaecium and androecium and glands, from above. 7. Gynaecium  $\times 1\frac{1}{2}$ . 8. Transverse section of young capsule  $\times 3$ . 9. Seed  $\times 3$ . 10. Capsule  $\times 1\frac{1}{2}$ .

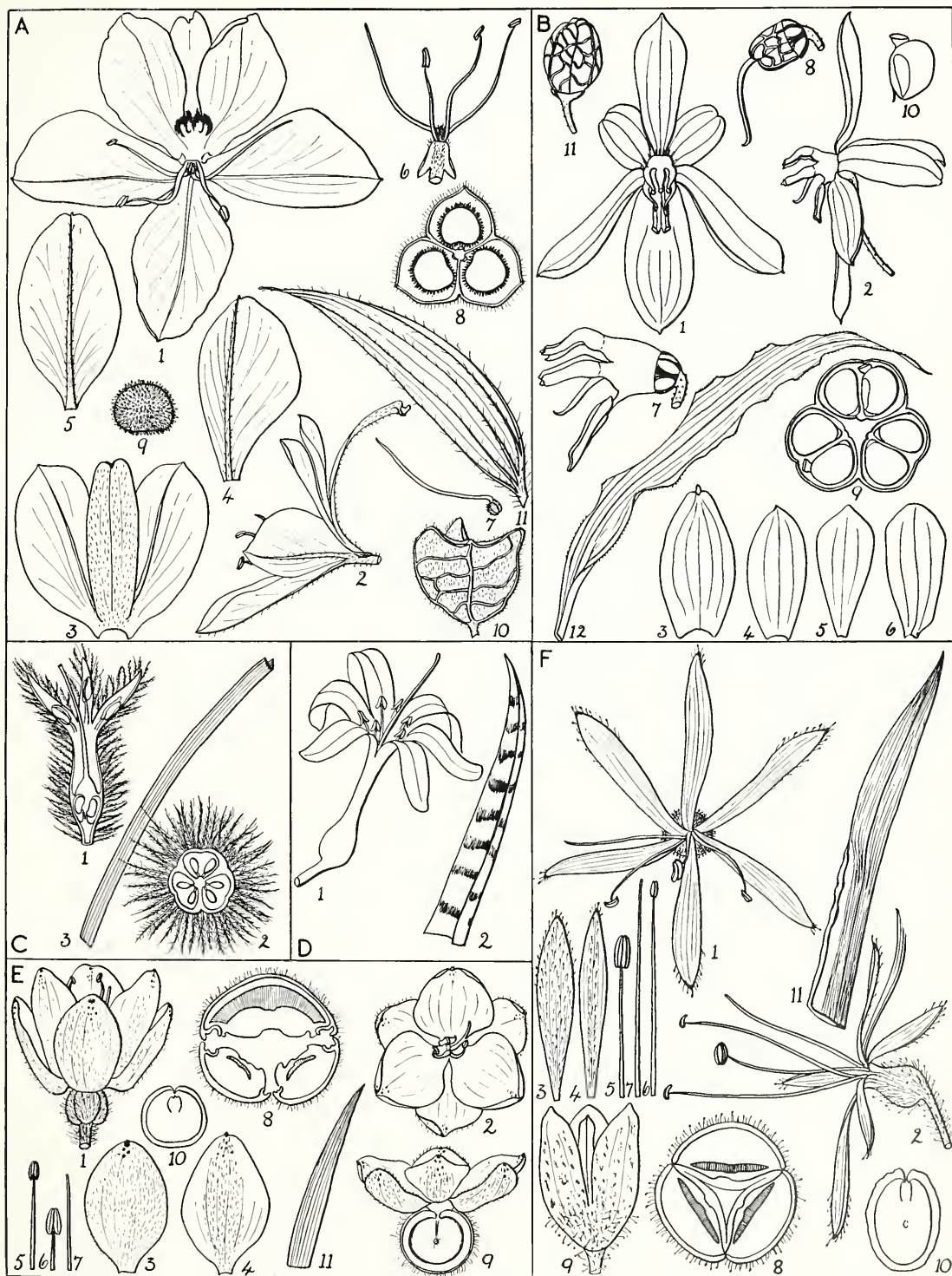
B. *Cyanella capensis* Linn. 1. Flower, front view. 2. Flower, side view. 3. Lower outer perianth segment. 4. Lateral outer perianth segment. 5. Upper inner perianth segment. 6. Lateral inner perianth segment  $\times 2\frac{1}{2}$ . 7. Gynaecium and androecium, side view  $\times 5$ . 8. Gynaecium. 9. Transverse section of young capsule. 10. Seed  $\times 5$ . 11. Young capsule  $\times 2\frac{1}{2}$ .

C. *Lanaria plumosa* Thunb. 1. Longitudinal section of flower  $\times 2\frac{1}{2}$ . 2. Transverse section of ovary  $\times 5$ . 3. Portion of leaf, natural size.

D. *Sansevieria zeylanica* Willd. 1. Flower, natural size. 2. Upper portion of leaf  $\times \frac{1}{2}$ .

E. *Dilatria Pillansii* Barker. 1. Flower, side view. 2. Flower, front view. 3. Outer perianth segment, back view. 4. Inner perianth segment, back view. 5. Long stamen. 6. Short stamen. 7. Style  $\times 2\frac{1}{2}$ . 8. Transverse section of capsule  $\times 10$ . 9. Old perianth with carpel attached containing seed. 10. Seed, outer view  $\times 2\frac{1}{2}$ . 11. Upper portion of leaf, natural size.

F. *Dilatria viscosa* Linn. f. 1. Flower, front view. 2. Flower, side view. 3. Outer perianth segment, back view. 4. Inner perianth segment, back view. 5. Short stamen. 6. Long stamen. 7. Style  $\times 2\frac{1}{2}$ . 8. Transverse section of young capsule  $\times 5$ . 9. Old capsule  $\times 2\frac{1}{2}$ . 10. Ripe seed, outer view  $\times 2\frac{1}{2}$ . 11. Leaf  $\times \frac{1}{2}$ .



Del. W. F. Barker

PLATE II: South African Haemodoraceae.





The plants are characterised by having a thick creeping rhizome, a rosette of rigid, fibrous, erect, terete or flat leaves and a dense cylindrical raceme or panicle of whitish flowers which appear from December to April. These have a long cylindrical tube, six subequal spreading linear perianth segments and six stamens inserted in the throat of the perianth tube. The ovary is superior and three-celled, with a solitary ovule in each cell.

Wachendorfia was named in 1757 by Burmann after Professor Wachendorff. He described two species *W. thyrsoflora* and *W. paniculata*. The former with its tall thyrus-like inflorescences of bright yellow flowers up to 6 feet in height is occasionally found flowering beside streams in the Cape Peninsula from September to November, and extends northwards to Piquetberg and eastwards as far as Port Elizabeth. Owing to the fact that the flowers in Wachendorfia are extremely fragile and bruise with the slightest touch, it is very difficult to make herbarium specimens which show their characters and this probably accounts for the fact that the identity of Burmann's *W. paniculata* is obscure. Baker in the "Flora Capensis" has included all the plants with short paniculate inflorescences as varieties of *W. paniculata*, but from observations made of plants in the field and grown at Kirstenbosch it is clear that there are at least six, possibly more, distinct species among them. They are found along the coastal region of the Western Province as far north as the Pakhuisberg and eastwards to the Vanstaadensberg, and flower from August to November. The flowers which occur in varying shades of cream, yellow orange, and light brown are very dainty. They do not open readily in water and are not suitable as cut flowers, but the tubers transplant easily and the numerous buds which open in succession give a blossoming period of several weeks.

In Wachendorfia the leaves are plicate as in Babiana and the pubescent inflorescence is thyrsoid or paniced. The flowers are characterised by having the three upper segments adnate at the base and usually have a dark marking in the middle line about a third of the way from the base, while two glandular structures extend down the pedicel. The two lateral perianth segments are asymmetrical and of the stamens, which are three in number, two turn to one side while the style turns to the opposite side as does the third stamen, giving the flower a symmetrical appearance. The fruit is a loculicidal capsule and the seeds which are globular are covered with a mass of minute projections. (Plate II A).

Very little is known about the monotypic genus *Barberetta* despite the fact that it was described as long ago as 1868 by Harvey who named it after Mrs. Barber. *Barberetta lutea* as it is called appears to be confined to Pondoland, East Griqualand and Natal and is very rare. It has a tuberous rootstock and leaves with distinct vertical ribs. The bright orange flowers are racemose and the three stamens are attached to the base of the outer segments. The ovary is superior and oblique and has one perfect chamber containing one ovule.

*Pauridia* too is a monotypic genus consisting of the single species *Pauridia hypoxidioides*. It has a fibrous corm and linear leaves and starlike flowers very similar to those of some of the *Spiloxenes* and is often mistaken for them, but the anthers are only three in number, situated opposite the inner segments, and there is a short tube above the ovary. It occurs on the flats from the Cape to Riversdale.

*Dilatris* is perhaps the most charming of all the genera of the Haemodoraceae and appears to be the most difficult to grow. The only illustration of a plant grown in Europe is to be found in Smith's "Exotic Botany."

The genus, which was originally named by Bergius in 1767 with *D. corymbosa* as the only species, now comprises four or perhaps five species which occur on the mountain slopes and plateaux and occasionally on the flats in the Western Cape. *D. viscosa*, *D. corymbosa* and *D. Pillansii* occur on the Cape Peninsula, *D. corymbosa* being confined to it, while the others extend on to the mainland. *D. ixioïdes*, characterised by its long exserted stamens, is the most widely distributed of all the species extending to Nieuwoudtville in the North-West and eastwards as far as George. It is known to occur on the mountains near Stellenbosch but does not appear to reach the Peninsula. It is perhaps the daintiest of all the species, making a charming picture where it grows in mass as it does on the slopes of the Cedarberg Mountains, flowering from September to January.

The genus is characterised by having narrow erect leaves which usually occur in tufts and the pubescent or hirsute inflorescence is usually raised well above them. The perianth segments are subequal, the stamens three in number are opposite the inner segments and one of them has a shorter filament and a larger anther than the rest. The ovary is inferior and each carpel contains one ovule.

The species may be divided into two distinct groups. *D. viscosa* (Plate II F) is a marsh plant and has an inflorescence of dull orange flowers covered with viscid glandular hairs. The flowers appear in September and

October and the segments are linear-lanceolate and spreading. The capsule is septicidal and opens at the apex, each cell containing a single large flat seed. The other group comprises those species which have mauve flowers and broader segments which become papery and act as a parachute in the dispersal of the seed. They are *D. corymbosa*, *D. ixioides* and *D. Pillansii* (Plate II E). Usually only one carpel develops, which begins to break away from the receptacle at the base and finally separates completely from it with the dry perianth attached at the apex. Nothing is known about the germination of the seeds but experiments are being carried out at Kirstenbosch at present.

*Lanaria*, commonly known as the "Kapokblom," is another monotypic genus. It grows on mountain slopes from Somerset West to Albany and flowers from September to January. Its entire inflorescence including the outside of the perianth is covered with a mass of long plumose white hairs which probably suggested the specific name to Thunberg who named it *Lanaria plumosa* in 1789 (Plate II C). It has been confused with *Dilatrix* and was put into that genus by several early botanists, but it differs in having a tube above the ovary while the perianth segments are free in *Dilatrix*; further, it has six anthers all the same size and the ovary half inferior, each carpel containing two ovules.

*Cyanella* which was named by Linnaeus in 1754 is perhaps the most difficult genus to place and Hutchinson has put it into the *Tecophilaeaceae*. It appears to have been extensively grown in Europe for five species are illus-

trated in old publications, the earliest being one by Jacquin in 1776 from a plant grown in Vienna. A species is said to have been cultivated by Miller in 1767 while *Cyanella lutea* was introduced to Kew in 1788 by Masson.

The seven species of *Cyanella*, which extend from Namaqualand to the Albany Division, are to be found in flower from July to December. The underground stem is a corm and those of some species are said to be edible. The leaves are arranged in a rosette and are terete to lanceolate. The flowers are few or arranged in a compound raceme. The perianth is cut down to the ovary and the segments are subequal and spreading or reflexed. The stamens which are six in number dehisce by apical pores; the upper three or five are arcuate, the remaining ones declinate with larger differently coloured anthers. The ovary is half inferior being adnate to the perianth near the base and is typically veined: it is composed of three cells with numerous ovules and the capsule is loculicidal.

It is a very attractive genus from the gardening point of view. The corms are large and transplant easily and the flowers are dainty, occurring in pastel shades of mauve, pink, yellow and white. *Cyanella orchidiformis* is perhaps the most attractive, having tall branched inflorescences of large mauve flowers, but the most widely distributed and commonest species is *C. capensis* (Plate II B) with mauve segments and yellow stamens, which is the only one to appear on the Peninsula and can make a very attractive display when grown in mass. A bed at Kirstenbosch of a form of *C. capensis*, collected originally at Piquetberg, has been a delight for at least six weeks.

# Humus and Soil Fertility.

By F. W. THORNS.

ONE of the major problems which we at Kirstenbosch have to face, in common with horticulturists and agriculturists of all tropical and sub-tropical regions, is that of maintaining our soils in sufficiently fertile condition to enable good crops to be produced year after year. Virgin soils, such as newly cleared bush land, and also soils taken back under cultivation after a lengthy period of rest, invariably give good results for a season or two, but an inevitable decline sets in, which has been aptly described as the "law of diminishing returns." A stage is ultimately reached where the soils become apparently partially sterile, in which condition they fail to give any appreciable response to applications of inorganic fertilisers. This condition is known to be directly due to the loss of the humus content of the soil, with a consequent reduction in number of the micro-organisms which must be present if inorganic substances are to be broken down to provide the necessary plant foods in assimilable condition. Humus is lost by the simple process of oxidation, which process is accelerated by the ordinary methods of cultivation, such as constant tilling and aerating of the soil, particularly under conditions of high temperature, droughty periods, and when no surface cover is present.

In various parts of the world this problem has been partially circumvented, but not solved, by the abominable method of shifting cultivation, in which worn out lands are abandoned and allowed to become covered with natural plant cover once more. Possibly under some conditions an improvement might result through the cessation of tillage, the effects of shade, and a slight accumulation of humus, but the system is generally bad, and in any case is inapplicable to gardens in general. No suitable practical method can be suggested which would prevent excessive oxidation of humus by means of providing ground cover when areas are not actually occupied by crops, and we are therefore left with one solution only, that is, to replace this loss by the addition of humus obtained by some suitable means.

At Kirstenbosch during the past four years considerable attention has been given to this problem of the renewal of humus, and although it is by no means solved, some progress has been made, and the results are given here in

the hope that they may be of interest to others. It must be stated that no strictly scientific experiments have yet been attempted, as facilities have not allowed for this, and the following notes are merely observations gathered during routine garden operations.

To return to the problem as it applied to Kirstenbosch about four years ago. The cultivated area had been under various types of indigenous plants for, in some instances, more than twenty years. Previous to the establishment of the Gardens the land had been part under orchard and vineyards, and part occupied by oaks, for many years. Doubtless the fertility of the soil had been declining steadily over a long period, as, although applications of humus in the shape of leaf mould and farmyard manure had been given at various times, it must be assumed that the quantities applied were unavoidably much less than the amounts lost by oxidation and erosion. The greater part of the vegetable refuse produced over this period, such as weeds, trimmings, etc., had been burned, and therefore lost.

Although signs of soil infertility and lack of humus were noticeable in most parts, the deficiency was most marked in areas devoted to Cape annuals, which complete their growth in early summer, and are usually removed, leaving the soil vacant during the hottest summer months. It was decided to cease the practice of burning this refuse, and a large area of spent annuals, together with a fair crop of weeds, was dug in to a depth of about 18 inches. This was done at the end of November, but subsequent examinations showed that the dug-in material absolutely refused to rot, although moist, but remained in a beautifully preserved condition. This fact was attributed to a deficiency of lime, which is general among Cape soils, although ours are not acid, giving a neutral reaction to tests. The following year it was arranged for a similar digging in, this time with an application of agricultural lime, but results differed little from the previous method. It is now believed that the failure of the dug-in material to decompose was due to insufficient nitrogen, but the method was abandoned in favour of composting material in heaps.

The first compost heaps were made simply by piling garden debris in heaps about six feet wide and four feet high, the length depending upon the quantity. Labour and transport facilities were scarce, and the heaps were made



in convenient situation to the plots from which material was gathered. No treatment was given beyond one or two turnings, and the compost was ready for use in from six months to one year, according to the fineness or coarseness of the material used. Succeeding heaps were supplied with ammonium sulphate at the rate of a handful per square yard of surface to each 12 inch layer, with a similar amount of agricultural lime at the first turning. If kept moist by watering with a hose these heaps were ready for use in four to six months, having had about three turnings during this period.

At this stage, that is, about a year ago, it became obvious that the principle of maintaining compost heaps was sound, and that the subject would repay closer attention. All of the heaps made had produced compost of good texture and appearance, but the time taken in turning, etc., was considerable, and an accelerated process was desirable. Moreover the amount of compost obtained when using all garden debris, including prunings up to half an inch in diameter, was very small. In addition, although improving the soil physically, the compost had not proved as good a fertilising agent as had been expected.

About this period gardeners and others appear to have become particularly compost-minded, and numerous articles and pamphlets appeared on the subject. These were studied, but none appeared to be easily adaptable to our conditions. Some depended upon costly installations of pits; some were designed for materials rather different from ours, and one at least appeared to depend upon something akin to black magic. However, it appeared that our material was too dry, not sufficiently leafy or nitrogenous to decompose easily on its own, and a new system was tried which is still being used, the procedure being as follows:—

All plant refuse is collected in dumps near a level space and a water tap. The material consists of grass trimmings, weeds, spent annuals, trimmings from paths and firebelts, light prunings, etc. When a good supply is accumulated a heap is built about eight feet wide and five feet high, by placing a layer of refuse about a foot deep, followed by about four inches of cow manure, and continuing until the correct height is reached. The length will depend upon the quantity of material. If wood ashes are available they are added, and should the raw material be dry, the finished heap is watered thoroughly, when it will proceed to ferment at once.

An iron bar or pipe is stuck into the heap, which can be withdrawn to test the temperature by the hand. Usually about the fourth or fifth day the temperature reaches its

peak, and the iron may be too hot to hold. Temperatures of over 180° F. have been noted. After the peak, the temperature will drop slowly, and the heaps are generally cool in about three or four weeks. They may then be turned and shaken up, and rebuilt to the same height and breadth, but they will be much shorter owing to shrinkage of material by decomposition. If dry they are again watered, and further heating will follow, although not to the extent of the original heaps. Under good conditions the heaps will require no further treatment beyond water, and will be ready for use in about two months. We have on occasion produced excellent compost, ready for use, in six weeks.

The foregoing applies to the summer months, which is the period during which most garden refuse becomes available. Care is taken that the heaps do not become dry, or fermentation will cease. A dry heap, when watered, will generally rise rapidly in temperature again, but heavy rain on a heap that is functioning normally appears to have a retarding action.

It does not appear to be possible to obtain good results during the winter rains, and any material then obtained is dumped ready to be mixed with the first summer heaps. The best results are obtained by waiting until sufficient material is available to make a considerable heap, and then building it in one operation. Attempts to build heaps in layers as material became available were unsatisfactory, as fermentation was uneven, and it was difficult to discard unsuitable material, in the shape of branches, bulbous weeds, and even bottles and cans, that seem to gravitate to these heaps.

The manure used up to the present has been cow manure obtained from local dairies, and it is first placed in a Baber fly control platform for a few weeks to get rid of fly larvae. An attempt to use the manure when freshly delivered, and so avoid double handling, resulted in heavy fly breeding, and had to be abandoned. No fly breeding or other troubles have been noticed from other heaps. A certain amount of the fermenting value of the manure is lost during its sojourn in the fly control platform, but it readily ferments again when mixed with the garden refuse.

The compost derived from heaps described above is dug in as an ordinary soil dressing, being applied about one to two inches thick. Its value as an immediate fertiliser is probably little more than that supplied by the manure content, but its physical value is much greater, and considerable improvements in soil conditions are expected from its use. It has been used with success in potting composts, but for this purpose it needs to be partially

sterilised by steam heating, to destroy weed seeds. Contrary to various claims that have been made, it is not considered likely that any method of composting refuse will destroy weed seeds, although the heaps that produce the highest temperatures produce less weeds than those which ferment slowly at low temperatures. With regard to spore-borne plant diseases, it is doubtful whether they will be destroyed, but this does not appear to be of great importance, as any fungoid diseases present in the locality will be already present in the air as spores.

So far our favourite raw material is trimmings from fire belts and paths in uncultivated areas. This consists of the usual Cape mixture of *Aspalathus*, *Stoebe*, *Psoralea*, *Restio*, *Senecio*, etc., etc., with a little occasional grass, all up to about three feet high when growing. Next come *Watsonia* leaves and spent annuals, etc. from the Gardens, with weeds and sweepings less favoured on account of the soil content retarding fermentation.

Woody branches are no longer used, as although they may be composted when up to two inches in diameter, the labour of chopping them and the numerous turnings necessary

render them unprofitable. The same applies to bulbous and rhizomatous weeds, which take too long to be worth while.

In conclusion it must be emphasized that it is not suggested that the formation of compost heaps solves the whole problem of soil maintenance. Unless the area to be cultivated is very small and the amount of vegetable matter available correspondingly large, there is very little hope of doing more than causing a halt in the loss of the humus content. In this connection the general term Soil Improvement is misleading, and it would be more apt to think in terms of Soil Maintenance, as the possibility of ever being able to build up our local soils, to compare with, for instance, some of the old European gardens, which have received heavy frequent dressings of good farmyard manure over many years, is considered to be remote.

Good quality farmyard manure, containing plenty of straw or litter, is still the best source of humus that could be obtained, but it is expensive and difficult to procure. By following the procedure outlined above we are able to secure the fullest possible benefits from the limited supply available.

## The Journal of South African Botany

*A Scientific Periodical*

*Published at Kirstenbosch.*

The annual volume (issued in quarterly parts) consists of about 200 pages of text and is copiously illustrated with plates and figures.

*Annual Subscription: 20/-; single parts 6/6.* (To Members of the Botanical Society 15/- and 5/- respectively). Post free.

Vols. I-VI (1935-1940) still obtainable at Kirstenbosch.

Vol. VII (1941) in preparation.

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# Mountains and their Vegetation.

By R. H. COMPTON.

ANYONE who climbs a mountain must notice that the plants growing at the higher levels differ from those which grow below. On such a mountain as Table Mountain the change is very marked. It is well-known to all who frequent the Mountain that such plants as the Cape Anemone, the Red Crassula and the Cluster Disa are almost entirely confined to altitudes above 1,500 feet. Many other plants, hardly less familiar, are characteristic of the upper slopes and krantzes: the Red Disa, the Drip Disa, the apricot-coloured *Watsonia tabularis*, several kinds of heath, the crimson *Brachysiphon*, the thick-stemmed Reeds, *Protea speciosa*, *Protea grandiceps*, and dozens of other plants could be mentioned. Many of these mountain plants are difficult to grow at lower altitudes, and success can only be obtained by taking special precautions.

Table Mountain is not unique among the mountains of the Cape in the change of flora with altitude: all of our mountains show similar phenomena.

Now it seems clear that mere differences in altitude have little or no direct effect on plants. The change in barometric pressure can hardly be expected to affect organisms without lungs: and the changes in composition of the air are also negligible. If we look at the vegetation of the mountains in the Karoo north of the Swartberg and Witteberg we find that changes of elevation produce relatively little effect compared with that produced on the coastal mountains.

The change in flora as one ascends Table Mountain is undoubtedly due to the marked change in climate connected with the formation of the south-easter cloud or "table-cloth." On one of the infrequent still days in summer the temperature on the Table may be high enough to demand the lightest clothing and a shady hat for the sun-sensitive person: but when the south or south-east winds blow the conditions are entirely different. The upper parts of the Mountain are wrapped in dense driving mist, whose minute water droplets are caught in quantity by the vegetation: trees drip with moisture, the peaty soil becomes sodden, the pools fill up and inadequately clothed walkers become saturated and chilled: all this happens while Cape Town is bathed in brilliant sunshine and subjected to a strong drying wind. It is no wonder that the mountain plants are distinct from the plants of the lower levels, so great is the difference in climate; for the south-easter

blows with greater or less strength through most of the summer, as well as frequently in spring and autumn and occasionally in winter, and its effect is always to reduce the temperature and increase the atmospheric humidity. This effect is most marked above 2,000 feet altitude, but can also be recognised at lower levels, for the cloud often forms as low as 1,500 feet and occasionally even touches Wynberg Hill only 600 feet above sea level.

In order to grow the cloud-loving plants of the mountain tops in our gardens the first requisite is abundant atmospheric moisture — a most difficult problem for the gardener. This is one reason why such outstanding plants as the Marsh Rose (*Orothamnus*), the Cape Anemone, the Blue, Red and Cluster Disas, the Silver Mimetes, Stokoe's Protea, etc., are almost impossible to grow in low-altitude gardens. (There are other difficulties as well, it should be noticed.)

There is another mountain-phenomenon which those who have reached high summits may have observed: that is the existence of a few kinds of plants which are apparently confined to the summits themselves and which hardly extend any appreciable distance down the slopes. On the Cedarberg mountain tops we find the extraordinary sneeuwblom (*Protea cryophila*) and two or three special heaths and buchus: on the mountains from the Winterhoek to the Cedarberg, Matroosberg and Bokkeveld Tafelberg we find *Erica oresigena* occupying any summit over 5,500 feet: along the ridge of the Witteberg there is a curious little Pelargonium (a variety of *P. oenotherae*); the Swartberg and Outeniquas have their own summit plants; even Table Mountain has one or two, including *Erica sexfaria*, which has not been seen (or recognised) for many years and may be extinct. Why these plants should be confined to mountain crests is a problem for which no satisfactory solution has been offered: conditions are always very severe on a mountain-top and only the real "toughs" of the plant world can survive there, but from this point of view it is their absence elsewhere that needs to be accounted for.

There are other peculiarities of mountain vegetation which may be mentioned. One is the difference, often most marked, between the two sides of the same mountain. This again is usually a moisture effect, either direct or indirect. In many cases the rainfall on the two sides of



a mountain may be entirely different: this is the case on Table Mountain for instance, where the rainfall on the eastern slopes is about three times as great as on the western slopes, and the vegetation on the two sides is almost totally dissimilar. These local variations of rainfall depend on the height of the mountains and the direction of the moisture-laden winds. An indirect moisture effect is very noticeable on our southern coastal ranges which run east and west; the sun strikes the northern slopes much more directly and for a longer period each day than in the case of the southern slopes, and thus the climate of the southern slopes is cooler and relatively moister than that of the northern. This often produces very marked effects. In the hills and mountains bordering on the Karoo (for instance round Touws River), where the rainfall is low and plant life is precarious, the southern slope of a koppie may have a few heaths, proteas, pelargoniums, buchus, reeds, etc., growing upon it — in fact, what we call a "Cape" vegetation, whereas the northern slope of the same koppie may have a "Karoo" vegetation of vygies, crassulas, etc. "Cape" plants are absent on the north slope, "Karoo" plants absent on the south.

\* \* \* \* \*

The above relations between mountains and plants are somewhat obvious and elementary, but vegetation is affected by mountains in other and more recondite ways, the study of which is one of the most fascinating problems of plant geography. For mountains can act as barriers to the migration of plants, and, paradoxically, they can also act as lines of communication by which the migration of plants is assisted.

Plants are continually endeavouring to increase the area they occupy, spreading outward by vegetative growth or scattering their seeds around them. If a plant started in the middle of an unoccupied open plain with suitable and similar conditions in all directions it would spread outwards from that centre in a series of concentric circles. This would continue until it met some obstacle or barrier — a river, the sea-shore, or an area with unsuitable climate or soil or occupied by other vegetation. Clearly a mountain range may be such a barrier or interruption to the spread of a species. It may act in various ways. The rock and soil conditions on the mountain may not suit a plant adapted to the soil of the plains; the mountain may be high enough to have a climate unsuitable to a plant coming from lower altitudes, and most important of all, perhaps, the climate of the plains on the far side of a mountain range may be entirely different from that on the near side.

Mountains regularly act by precipitating in the form of rain or mist a very high proportion of the moisture borne across them in the winds from the oceans. Consequently in the frequent case of mountain ranges parallel with a coast the country on their lee side is often desert or semi-desert. In the Cape Province karoo begins to the east of the Cedarberg and Cold Bokkeveld mountains and to the north of the Witteberg, Swartberg and Baviaanskloof Mountains, and there are local developments of karoo (the Little Karoo, for instance) on the lee side of the Langeberg and Outeniqua ranges. These karoo or semi-desert areas are the direct results of the mountains, and act as complete barriers to the migration of plants needing a higher rainfall and a moister atmosphere. Mountains therefore are not only barriers but they create barriers, so to speak, second-hand.

But if a mountain range is a barrier in the transverse direction it is quite the contrary in the direction of its length.

One of the most astonishing facts of plant-distribution is that quite a large number of the genera and even species of plants occurring in New Zealand and in the southern extremity of South America also occur in the Northern Hemisphere in Europe and North America. There are certain South African plants also which are very closely related to plants occurring in Europe: one may mention the genera *Gladiolus*, *Erica*, *Geranium*, *Silene* and *Vaccinium* among others. How has it happened that plants have been able to migrate over such vast distances across areas which are apparently inhospitable — tropical or desert?

It seems that mountain ranges acting as lines of communication, linking northern and southern hemispheres, are responsible for this long-distance migration. The way in which a mountain range can act is two-fold.

In the first place climate changes rapidly as one ascends a mountain; these changes are comparable with the changes of climate which one experiences as one goes further and further away from the tropics towards the poles. Thus *altitude* has a similar effect to *latitude*. A plant which is adapted to live at sea level in Alaska could also live at sea level in Patagonia, and the important point is that it could also find suitable climates for its existence along almost the whole length of the great mountain ranges — the Rockies, the Sierras and the Andes — which link Alaska with Patagonia; as it approached the equator it would merely have to go higher up the mountains to find suitable sub-arctic conditions. Thus migration would clearly be possible from extreme north to extreme south (or vice

*versa*, or intermediately), along the whole of the American continents, and there is no doubt that such migration of plants has taken place, aided by general climatic variations as well.

Another feature of mountains which helps migration is that they are regions of constant disturbance of surface. In the plains the surface under normal conditions changes little and is continuously occupied by vegetation: it is difficult for plants to obtain a foothold in ground already fully occupied, so that migration across plains may be slow. But in the mountains there are always bare areas caused by rock falls, land slides, lava flows, etc., and these areas

can be colonised by any plants growing in the neighbourhood. In this way it is easy to understand how, step by step, a particular plant can work its way lengthwise along a mountain range.

By a combination of these two effects, therefore — the change of climate with altitude, and the surface disturbances characteristic of mountains — a mountain range can act very efficiently through the long ages of plant history as a channel of migration with very remarkable results in plant distribution.

(Reprinted, by permission, from the *Journal of the Mountain Club of South Africa*).

## THE BOTANICAL SOCIETY OF SOUTH AFRICA.

ANNUAL REPORT, 1939.

In submitting this, the Twenty-sixth Annual Report, Financial Statement and Proceedings of the Society, the Council have pleasure in reporting that the steady progress hitherto attained has been maintained during the year under review.

The Membership of the Society stands at 1,878, being represented by 85 Life Members, 103 Family Members, 1,058 Ordinary Members and 632 Associate Members.

The financial position of the Society remains satisfactory as revealed by the audited Balance Sheet and Revenue and Expenditure Accounts.

The Annual Grant to the Trustees of the National Botanic Gardens amounted to £1,021, being the largest amount so far donated for the maintenance and development of Kirstenbosch. The amount standing to the credit of the Life Members' Fund is £880 and investments amount to over £1,900.

MEETINGS OF THE COUNCIL.—Four meetings of the Council were held during the year as laid down by the Constitution and these were well attended by members.

ELECTION OF OFFICE BEARERS.—At the Annual General Meeting held on 25th May, 1939, the following Office Bearers were elected:

*President:* W. Duncan Baxter, Esq.

*Vice-Presidents:* Lady Phillips, J. B. Taylor, Esq. and Dr. H. G. Fourcade.

*As Members of Council:* Dr. L. Bolus, Messrs. A. H. Cornish Bowden, F. E. Cartwright, Professor R. H. Compton, Messrs. F. W. Duckitt, P. Ross Frames, Dr. Bennie Hewat, Messrs. F. A. C. Guthrie, J. D. Krige,

A. J. Lambrechts, F. P. Marais, J. W. Mathews, F. W. Metelkamp, Dr. H. Moffat, Messrs. W. Olive, C. J. Sibbett, H. C. Starke, Miss E. L. Stephens, Capt. Chas. Struben, Mr. E. W. McL. Thomas.

At the first meeting of Council held on 23rd June, Mr. F. W. Metelkamp was re-elected Chairman and Mr. F. E. Cartwright, Hon. Secretary and Treasurer.

JOURNAL OF THE SOCIETY.—The twenty-fifth issue of the Society's Journal was published in December and following the usual procedure copies were sent to all members. A list of free seeds from Kirstenbosch and Whitehill was inserted in every Journal. Copies of the Journal were issued to the leading Botanic Gardens of the world who reciprocate by the exchange of their publications which are added to the Library at Kirstenbosch. The thanks of the Society are due to Professor Compton for his valuable help in editing the Journal, which is a very great asset to the Society. The total nett cost of printing the Journal, together with postage, etc., was £107 18s. 3d., as against which £20 was due for Advertisements therein.

The Journal contained extracts from an address by Mr. F. R. Long, Superintendent of Parks and Towns Attractions, Port Elizabeth, on "Parks and Publicity." Miss J. W. Steytler, Secretary of the National Botanic Gardens, contributed an article on the new buildings at Kirstenbosch. Mr Long's article was illustrated by a plate of the Baakens River Nature Reserve, and Miss Steytler's was accompanied by three plates representing the new Main Entrance, Bell Tower and Assistant Curator's House, the new Men's Hostel and the new Museum and Lecture Room. Another plate showed a scene in the newly developed garden area at Kirstenbosch. A coloured

plate of various species of *Conophytum* drawn by the late Beatrice Carter, artist at the Bolus Herbarium, was also included. The Journal also contained news and notes by the Editor and the revised Constitution, Prospectus, List of Members, Report and Balance Sheet for 1938 of the Botanical Society.

**WILD FLOWERS PROTECTION COMMITTEE.**—As stated in our last Annual Report this Committee elected by Council now deals with all matters relating to wild flower protection. The original Society having become defunct, the Council decided to undertake this work and at their meeting on 23rd June, 1939, elected the following members as a special Committee: Professor R. H. Compton, Dr. H. Moffat, Dr. Bennie Hewat, Messrs. F. W. Metelerkamp, C. J. Sibbett, J. J. Kotze, F. W. Duckitt, F. A. C. Guthrie, and F. E. Cartwright. The following members have been co-opted: Messrs. C. P. de Wet, N. S. Pillans and J. D. Krige, also Mr. M. F. Breda, M.E.C. and Mr. M. S. Leibbrandt of the Administrator's Dept., to act in an advisory capacity.

A Report from this Committee as at 31st December 1939 is attached.

**MEMBERSHIP.**—The total number of members as reported above has slightly decreased. This is due to 111 members, many of them being overseas members, having failed to fulfil their obligations after repeated notices had been sent to them. Authority was granted to the Hon. Secretary to delete their names from the register. There is, however, a steady increase in the number of new members. During the year the following joined as Life Members: Lady Duncan, Prince Joseph Labia, Count Luccio Labia and Mr. W. Bisset.

**ANNUAL GATHERING AT KIRSTENBOSCH.**—The Annual Gathering was held on the morning of Thursday, 21st September, and was attended by a record number of Members and their friends. The Gathering was addressed by the President, Mr. W. Duncan Baxter, Mr. F. W. Metelerkamp, Chairman of Council and Professor R. H. Compton, Director of the Gardens. Tea and light refreshments were provided for guests. The visitors afterwards inspected the many improvements which had taken place in the Gardens and the new Lecture Hall which had been completed and is now in use for students of Nature Study from the various Primary Schools in the Peninsula under the able instruction of Miss M. Johns and Miss M. Thesen. Many hundreds of students have attended these lectures regularly during the year.

**KAROO GARDEN, WHITEHILL.**—Your Council is gratified at the continued support given by members by

subscribing towards the upkeep and development of this outstation of Kirstenbosch. The Grant from the Society derived from these subscriptions was £95, which has been of very great assistance in carrying on the important work there.

**TABLE MOUNTAIN QUARRIES.**—The Council appointed Professor Compton to represent the Society before the Commission appointed by the Administrator to enquire into the closing of quarries on Table Mountain. A letter was addressed to the Secretary of the National Monuments Commission stating that the Society would support any steps they were taking for the closing of the quarries.

**TABLE MOUNTAIN ROAD.**—Steps have been taken to make representations to His Worship the Mayor of Cape Town on a report which had been received that the Municipality were contemplating the construction of a road to the summit of Table Mountain. Assurances had been received from the Mayor that no such scheme had been before the Council.

**GENERAL.**—The work accomplished at Kirstenbosch and Whitehill during the year is recorded in the Report of the Director to the Trustees, copies of which have been circulated to Members of the Society.

Several Members took advantage of the special subscription rates to the Journal of South African Botany, Volume V of which was published.

During the year 1939, the Gardens distributed to Members of the Botanical Society and various Botanical Institutions 463 lots of material consisting of 5,714 packets of seeds.

The total number of contributions of plant material to Kirstenbosch during the year was 255 lots of material comprising 1,515 plants, 36 cuttings, 301 packets of seeds and a considerable number of bulbs.

The number of visitors recorded as entering the Kirstenbosch gates was as follows: Saturday afternoons, 21,847; Sundays, 76,635; Public Holidays, 16,922; being a total of 115,404, making an increase as against last year for these days of 24,791. No records are kept on other days.

**THANKS.**—The Council begs to express its great indebtedness to the South African Association for use of their Board Room for meetings of Council and Wild Flowers Protection Committee, and to the Press for their unflinching co-operation in reporting the proceedings of the Society.

F. W. METELERKAMP,  
*Chairman.*

FRANK E. CARTWRIGHT,  
*Hon. Secretary and Treasurer.*



## Report by the Wild Flowers Protection Section Committee for the Year Ending 31st December, 1939.

During the year six Meetings of the Committee were held. At the first meeting held on 19th January, 1939, Mr. F. W. Metelerkamp was elected Chairman and Mr. F. E. Cartwright, Hon. Secretary.

**MEMBERSHIP.**—The membership of this branch of your Society stands at 196. There is a slow but steady increase in new subscribers.

**FINANCIAL.**—The amount to the credit of the Section at the Standard Bank was £88 2s. 3d.

During the year hearty support was given by your Committee to the establishment of Smith's Farm at Cape Point as a Nature Reserve, and every endeavour was made to get Nature Reserves established in various country districts. In the majority of cases, there did not seem to be any great desire to promote these, due, mostly, to unsuitability of situation. This matter will have the further consideration of the Committee.

During the short existence of this Committee, many requests have been received from public bodies and others for coloured illustrations of the protected wild flowers, in consequence of which your Committee took up the matter and prepared a list of some 60 to 70 varieties considered most suitable. It was proposed to publish folders suitable for pocket use, consisting of a series of 30 or 40 in one folder. Quotations were obtained for the production of these locally and overseas, but, owing to war conditions, the cost was more than our financial resources could face; the matter has been set down to be taken up when conditions improve.

**WILD FLOWER ORDINANCES.**—Although the new Ordinance (No. 15 of 1937) was promulgated on the 23rd July, 1937, and the lists of protected flowers were published under Proclamation No. 166 of 9th December, 1937, it was found impracticable to enforce the law until a much later date. This was largely due to the fact that sales of unprotected flowers were legal only at specially authorised stands or places and these stands had to be set apart by the local authority and duly advertised. It was some considerable time before these steps were taken, in fact, a circular to some 78 local authorities in flower districts showed that a number have, as yet, taken no steps in this regard. Further action should be taken during the present year with a view to having this placed on a more satisfactory basis.

There is no doubt that the new Ordinance has had a beneficial effect. While there is still a great deal of room for improvement, the sale of protected flowers has decreased of late, and, as time goes on, the restraining influence of the new law will become more apparent. The making of hawking of wild flowers illegal is a distinct advance on the previous law. This provision, however, is very difficult to enforce as the beauty of our flowers seems to overcome any scruples which our womenfolk have in buying them at the door. It has been suggested that the law should be amended so that the buyer of a wild flower from a hawker commits an offence as well as the seller. This matter is now under consideration.

During the year it became apparent that in order to facilitate the carrying out of the law, there were several points in the Ordinances and regulations which it would be well to amend. With this object in view, the Administrator was asked to receive a deputation, but at the close of the period under review, this had not been arranged. At this meeting your Committee also desired to raise the question of the appointment of honorary and full-time Inspectors. This is a matter of great importance and while it is recognised that there may be difficulty in obtaining men with sufficient knowledge and tact, it is most difficult to carry out the provisions of the Ordinance without Inspectors. The Committee, however, realize that the enforcement of laws and Ordinances is only one of many means of protecting and preserving our glorious wild flowers. This is evidenced by the aims of your Committee which are: "To promote the preservation of the Native Flora of South Africa, to encourage public interest in it, and to co-operate with the public authorities and others in the attainment of this object."

The thanks of the Committee are due to Mr. F. A. C. Guthrie, who rendered much valuable assistance in drawing up a synopsis of the Wild Flower Ordinances and Regulations.

It is gratifying to report that Mr. M. S. Leibbrandt of the Administrator's Department has joined the Committee in an advisory capacity; his help has been much appreciated.

The thanks of the Committee are due to Mr. J. J. Kotze, Conservator of Forests, for his valuable assistance in sending a list of wild flower reserves under control of the Forest Department.

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# List of Members of the Botanical Society.

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Ordinary Members:

Associates.)

The star (\*) indicates Members who are also Subscribers to the Karoo Garden, Whitehill.

The cross (†) indicates Members who are also Subscribers to the Wild Flower Protection Section.

In case of any inaccuracy in the following list it is requested that notification should be made to the Hon. Secretary, P.O. Box 267, Cape Town.

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- (b) To augment the Government grants towards developing, improving, and maintaining fully equipped botanical gardens, laboratories, experimental gardens, etc., at Kirstenbosch and Whitehill.
- (c) To organise shows at which may be displayed the results of botanical experiments or cultural skill in improving the different varieties of South African flora.
- (d) To enlighten and instruct the members on botanical subjects by means of rambles, meetings, lectures and conferences, and by the distribution of literature.
- (e) To promote the preservation of the Native Flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

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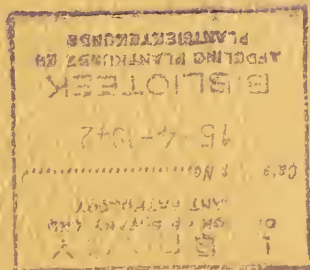
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OF SOUTH AFRICA

Edited by R. H. COMPTON  
M.A., F.R.S.S.Af., Director of the  
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Part XXVII. 1941

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PART XXVII

1941

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(b) The Bell Tower at Kirstenbosch.

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Plate IV: Letters by Cecil Rhodes written in 1901.

# News and Notes.

"I CAN imagine no greater service to horticulture than an annual subscription to Kirstenbosch."—Lt.-Col. C. H. Grey, D.S.O., F.L.S. ("*Hardy Bulbs*," vol. II, p. 177).

„As 'n mens die ledelys van die Botaniese Vereniging nagaan, is 'n opvallende kenmerk daarvan nog altyd die uiters geringe aantal Afrikaanssprekende lede wat daarop voorkom. Dat die kulturele belangstelling van Afrikaanssprekendes in die verlede grotendeels tot literêre en historiese sake beperk gebly het, is verstaanbaar. Daar moes lank en bitter om elementêre regte en om 'n blote bestaan geveg word. Dit is nou egter tyd dat ons ons deel bydra tot die beskerming van een van ons grootste nasionale bates, ons pragtige inheemse plantegroei. Tot dusver is byna alle handboeke oor ons plantegroei en dierelewe deur Engelssprekendes geskryf; alle pogings tot beskerming en bewaring daarvan is deur Engelssprekendes onderneem en deurgevoer, en blykbaar is dit nog hoofsaaklik Engelsprekendes wat hulle vandag oor hierdie sake bekommer. Dit is 'n duidelike en waardevolle bydrae aan die nageslag waarvan hulle groot eer het. Die Afrikaanse volksgroep geniet vandag die vrugte van hierdie moeisame arbeid. Uit dankbaarheid en erkentlikheid, maar ook omdat ons hierdie nasionale plig nog nooit nagekom het nie, behoort ons die Botaniese Vereniging ons volle steun te gee deur daarby aan te sluit."—*Die Huisgenoot* 14 Februarie 1940.

We regret to record a slight diminution in the membership of the Botanical Society during 1941. Although several new members have joined the Society they have not made up for the losses by death and resignations. The amount available for handing over to the Trustees for the maintenance of Kirstenbosch is expected to be £970 as compared with £1,086 in the previous year. It may be remarked that, although diminution in membership might well be expected, this is the first time in the history of the Society that any diminution has occurred. Members are strongly urged to endeavour to enrol their friends as new members of the Society, so as at least to restore the numbers to the former level. An application form is enclosed in this copy of the *Journal*.

The vacancy on the Board of Trustees of the National Botanic Gardens caused by the resignation of Sir James Rose-Innes was filled by the appointment by the Union Government of Dr. D. Bennie Hewat, who has been a member of the Council of the Botanical Society since 1926.

The following seven out of a total of eleven members of the European Staff of the Gardens are now on active service:—

Miss J. W. Steytler (Secretary), Staff-Sergeant, W.A.A.S.

Mr. A. J. M. Middlemost (Assistant Curator), Corporal, S.A.E.C.

Mr. H. S. de Villiers (Gardener), 2nd A. A. Brigade.  
Mr. A. Fairall (Gardener), Corporal, 3rd M.F.F. Field Co.

Miss P. Bond (Botanical Assistant), W.A.A.S.

Miss R. du Plessis (Gardener), W.A.A.S.

Mr. H. Biegel (Gardener), Nederlands Forces.

Good news has recently been received of all of them.

The work of Kirstenbosch is seriously handicapped by loss of Staff, and it has only been possible to appoint three substitutes (one of whom will probably go shortly). In these circumstances it will of course be impossible to maintain the standard of certain sections of the work or to undertake new development. The provision of new works by the Public Works Department is also reduced to almost nothing. Steps are being taken to guard against actual deterioration in Gardens, Buildings and Herbarium. Expenses have not decreased, however, owing to the payment of allowances to staff on active service and cost of living allowances, and the increased cost of all materials.

The Edward Muspratt Solly Scholarship for 1941 was held by Miss M. Walgate, B.Sc. (Cape Town). During her time at Kirstenbosch she continued her study of the genus *Agathosma*. She also made many drawings in line and colour, some of which have been published in the *Journal of South African Botany*: others await publication and have been filed for reference in the Herbarium. Miss Walgate did not apply for a second year's tenure of the Scholarship, but has joined the Artillery.

The Scholarship has not been awarded for 1942.



## THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA.

A reception by the Trustees and Director of the National Botanic Gardens was held at the Gardens Herbarium on 1st September 1941 in order to afford an opportunity for members of the Council of the Botanical Society and botanists and others interested to see the progress that had been made in this new establishment. The Director, in welcoming the guests, pointed out that every great Botanic Garden in the world and most of the smaller ones possessed their own herbaria, and that Kirstenbosch was now falling into line with this universal practice: and that the new Herbarium was destined to be an essential and integral part of the National Botanic Gardens. Through the Herbarium and the Journal of South African Botany the Gardens were now taking their rightful place as a scientific institution.

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The site of the present Tea House at Kirstenbosch was formerly occupied by the homestead of the Eksteen and Cloete families: remains of the old building can be seen in the front of the Tea House. The Kirstenbosch estate was bought by Cecil Rhodes in 1895 and the house remained unoccupied and speedily fell into disrepair, being also damaged by fire. We publish photographs showing it as many visitors remember it at the beginning of this century. In 1901 the South African Immigration Association was founded under the presidency of Mr. Justice Buchanan with Mrs. K. C. Bairnsfather as Secretary. Its objects were to encourage the immigration of women from Great Britain, to provide a home for them on arrival in the Colony, and to assist them in securing employment and settlement in South Africa. Rhodes heard of the scheme from Mrs. Bairnsfather and offered the Kirstenbosch homestead as a hostel, together with money for its repair. The offer, however, was not accepted, and indeed Kirstenbosch would have been an awkward locality for such a hostel in those days. Rhodes' letters are preserved in the Settlers Club, Queen Victoria Street, Cape Town, and are now reproduced by kind permission of the Secretary. By the time the Gardens were established at Kirstenbosch the old homestead was a complete ruin and could not be used in any way.

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The Kirstenbosch Tea House is now under the management of Mrs. O. C. Penfold. It has proved itself very popular recently, and is much used by visitors to the

Gardens, including troops from overseas and their escorts who regularly make Kirstenbosch part of their sight-seeing trips round the Peninsula. With the new restrictions on petrol it may be expected that the Tea House, which is only seven miles from Cape Town, will become even more popular as the more distant tea rooms fall out of range. Members of the Botanical Society are specially invited to patronise the Tea House and to bring their friends, as part of their visits to the Gardens.

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The parking arrangements at Kirstenbosch have recently been much improved, and the congestion which occasionally took place (when for instance, as sometimes happens, over a thousand cars enter the Gardens in one day) has been relieved. Visitors should remember, however, that Kirstenbosch is almost alone among the world's botanic gardens in permitting the entry of cars, and should appreciate their privileges in this and many other respects.

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The Annual Gathering of the Botanical Society took place at Kirstenbosch on 25th September 1941, the new Lecture Room being used for this purpose for the first time. Addresses were delivered by the President of the Society, Mr. W. Duncan Baxter, and the Director of the Gardens, Professor R. H. Compton. The Council of the Society had decided that on this occasion it would not provide refreshments, but would donate the money usually spent in this way to the South African Red Cross Society. Members and their friends accordingly took tea at the Tea House, and the Red Cross benefitted to the extent of £20.

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"Kirstenbosch Sunday," 28th September 1941, attracted a large number (estimated at about 4,000) of people to the Gardens, in spite of somewhat unfavourable weather. A collection was taken in aid of the South African Red Cross Society, members of the Gardens personnel and V.A.D. nurses in uniform helping to collect. Small buttonholes of South African everlastings, made and presented by Mr. and Mrs. O. C. Penfold, were given as tokens. The sum realised was £82 18s. 9d. Cordial thanks are due to those who provided press and screen publicity, and to all helpers. The institution of "Kirstenbosch Sunday" was definitely successful and it may become a regular annual occasion as a means of assisting such organisations as the Red Cross.

## THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA.

The seventh Volume of the Journal of South African Botany was published in four parts during 1941. It contained, among other outstanding features, a series of four articles on William John Burchell, whose "Travels in the Interior of Southern Africa," published in 1822-1824, is one of the most important works on the geography and natural history of this country, and who has been called "the most painstaking and accurate of botanical travellers." The articles were written by Mrs. H. M. McKay, whose knowledge of every detail of Burchell's life and work is unequalled. They are accompanied by 16 half-tone full-page illustrations mostly taken from Burchell's original drawings. The whole represents the most valuable study of the subject which has yet appeared.

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Mrs. McKay has generously presented an excellent example of the Maguire portrait of Burchell to the Gardens: this is now hung in the Herbarium together with the extract from the "Travels" in which he describes the view of Kirstenbosch which he obtained on 14 March 1811 from a spot not far from where the Herbarium stands. Mrs. McKay also presented several photographs of his drawings and one of an early portrait (now in Australia), and these have been made up into an album.

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The Journal of South African Botany also included numerous important articles on systematic botany which render it indispensable to the student and specialist. A feature of the publication is the profuse way in which it is illustrated. Owing to the subsidy received from the Trustees of the National Botanic Gardens it is possible to obtain the Journal for the low sum of 20s. per volume, post free: and Members and Associates of the Botanical Society have the privilege of purchasing it at the further reduced price of 15s. Volume VIII, 1942, is now in preparation, and subscriptions should be sent to the Secretary, Kirstenbosch, Newlands, C.P.

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South African botany is again profoundly indebted to Messrs. Alain White and Boyd Sloane in the United States for the production of a worthy successor to their fine work on the Stapelieae. They have now published two magnificent volumes on the Succulent Euphorbieae of

Southern Africa: in this work they have had the collaboration of Dr. Dyer in South Africa, which has resulted in a much fuller account of the Euphorbias as they grow in the wild state — a most desirable feature, as so few species are adequately represented in cultivation and herbaria. The book contains over a thousand pages and over eleven hundred illustrations. The authors have again won the admiration and gratitude of all students of our succulents.

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At the Annual Meeting of the South African Museums Association held in Johannesburg in July, 1941, Miss M. Johns, Teacher of Nature Study at Kirstenbosch, gave an account of her work. At present seventeen primary schools, seven secondary high schools and two training colleges send classes to Kirstenbosch; and the average number of children per day is 35. The total number has been greatly reduced since the departure on active service of Miss M. Thesen who shared the work with Miss Johns. It is most desirable in the interests of education in this valuable subject, that a new teacher of Nature Study should now be appointed, so that the work should not continue to be restricted: there is no diminution in the number of children who require it.

Miss Johns' paper was heard with great interest by the Conference which decided to send a resolution to the Administrators of all the Provinces commending the work and urging its extension. The paper is published in SAMAB (the bulletin of the Museums Association) of December 1941.

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The Royal Botanic Gardens, Kew, celebrated their centenary as a public institution in April 1941. Accounts of the history of the Gardens were published in *Nature* (5 April, 1941) and *Chronica Botanica* (November, 1941), and congratulations were received from Botanic Gardens all over the world, including Kirstenbosch, so many of which regard Kew almost in the light of a parent. The celebrations were overshadowed by the war: but although considerable damage has been done to glass-houses by enemy action the irreplaceable collections in the Herbarium and Library have so far mercifully escaped injury. In this respect Kew has been more fortunate than the Herbarium of the British Museum of Natural History, which was very largely destroyed.



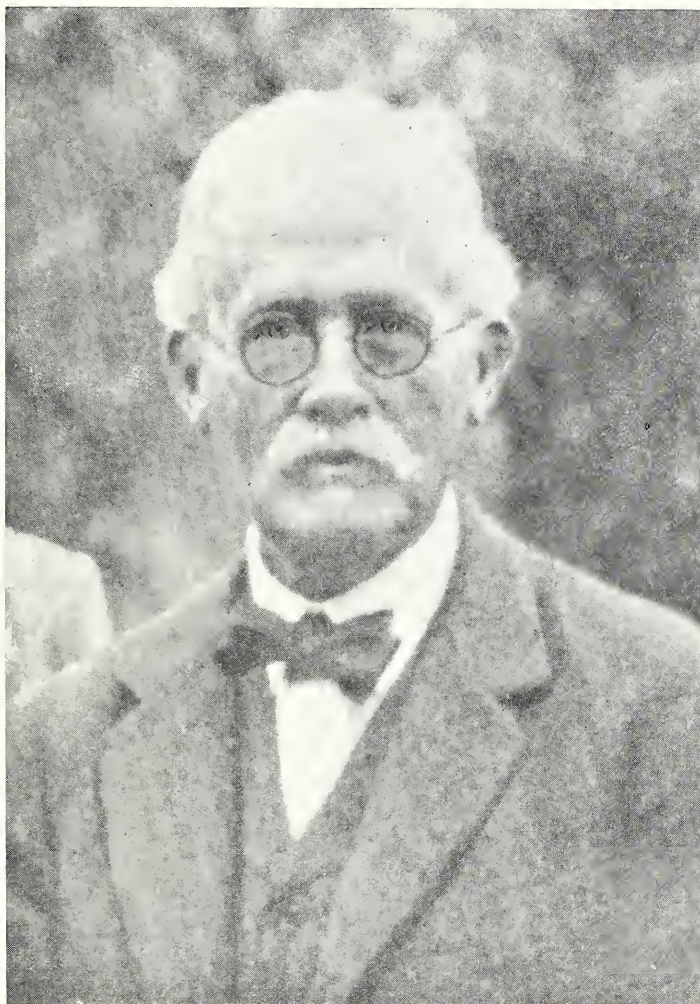


Plate I: Sir James Rose-Innes.





Interior of the new Room at the Kirstenbosch Tea House.



The Bell Tower at Kirstenbosch.

PLATE II:

## THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA.

Sir James Rose-Innes, who died in January, 1942, played an important part in the history of the Botanical Society and the National Botanic Gardens. He became President of the Society in 1914 on the death of Lord de Villiers, and held the office continuously until his retirement in 1936. Further, he was a member of the Board of Trustees of the National Botanic Gardens from 1924 until 1940. Gardens and Society owe much to his constant interest and support, to the wise tolerance and humanity of all his counsels and to the way in which, in the midst of his many activities, he always gladly gave his time, thought and energy to their problems. The frontispiece of this Journal is taken from a group photographed in Kirstenbosch in 1936.

The death of Sir Arthur Hill, K.C.M.G., D.Sc., F.R.S., Director of the Royal Botanic Gardens, Kew, which took place through a riding accident on 3rd November 1941, deprives the Botanical Society of an Honorary Life Member and the National Botanic Gardens of a friend.

Sir Arthur Hill was born in 1875 and had a distinguished career at Cambridge, becoming University Demonstrator in Botany in 1899 and Lecturer in 1905; he was a Fellow and Dean of Kings College. In 1907 he was appointed Assistant Director of the Royal Botanic Gardens, Kew, and in 1922 on the retirement of Sir David Prain he became Director, and held the office with conspicuous success owing to his botanical attainments, energy and personal qualities. He travelled extensively and built up friendly relations with Kew in all the countries he visited.

Sir Arthur Hill was known in South Africa as the monographer of the two difficult families Santalaceae and (with Sir David Prain) Gentianaceae in the Flora Capensis. In 1930 he visited South Africa, at the invitation of the Union Government, and spent two months here, during which time he made personal contacts all over the country, and finally wrote a report on his impressions: this was submitted to the Government, by whose permission a portion of it was printed in this *Journal*, Part XVII, 1931. As a result of his visits to Kirstenbosch and Whitehill he became enthusiastic as to their work and possibilities, and on one occasion he came promptly to the support of the Gardens when they were threatened with restriction. This *Journal* contains many examples of his help, and a few quotations may be made from what he wrote.

"Kirstenbosch can and should become one of the most renowned Botanic Gardens in the world."

"The whole botanical world looks to the Government of the Union to assist Kirstenbosch financially, so that its great possibilities may be fully attained and that it may be able to carry out research work."

"The excellent work which is being done by the Botanical Society of South Africa . . ."

"The Karoo Garden at Whitehill . . . where the remarkable Karoo vegetation is so admirably displayed." (Report to Government, 1931).

"My great desire, especially since I have had the advantage of seeing Kirstenbosch and something of the work you are doing, is to see that provision is made for the enlargement of your useful activities. I regard therefore any suggestion of the curtailment of your work as a retrograde step verging on a national disaster." (Letter, 1934).

"Any curtailment of the funds available for the maintenance and growth of Kirstenbosch would be viewed with deep concern, not only by botanists in Great Britain, but by botanists in Europe and the United States, and by horticulturists and plant-lovers all the world over. Such a curtailment would be an even more severe blow to the Union of South Africa, where possibly it may not be fully realised how great an asset it possesses in the Kirstenbosch Gardens.

"Should the Gardens be handicapped by lack of financial support, they will quickly deteriorate and sink to the level of a mere pleasure park, so that the high esteem in which they are held by the scientific world would be entirely lost. Such a degradation is unthinkable, and I trust that funds commensurate with the importance of the institution will be supplied without difficulty.

"Not only can there be seen at Kirstenbosch collections of living plants gathered from all parts of the Union, which otherwise could be seen only after months of travel, but the situation is one of the most beautiful in the world, and I consider it the paramount duty of your Government, to the present and succeeding generations, to maintain and preserve for all time this priceless heritage.

"Any suggestion that the future of Kirstenbosch as a botanical institution may be threatened, or its scientific work imperilled, would be regarded with horror by botanists all the world over, and I trust to hear that my fears are quite unfounded." (Message to Kirstenbosch 1934).

"The Gardens have not only come to stay, but have covered twenty-five years of fruitful existence and have fully earned the respect and admiration of Botanists and Horticulturists throughout the world. On the auspicious



## THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA.

occasion of the celebration of the completion of twenty-five years of proved achievement, I beg, on behalf of the Royal Botanic Gardens, Kew, to offer our best wishes for the continued advancement and prosperity of the Kirstenbosch Gardens." (Message on the Twenty-fifth Anniversary of the foundation of the National Botanic Gardens, 1938).

Dr. E. E. Galpin, whose death took place on 16th October, 1941 at the age of 83, was described by General Smuts as "the prince of South African collectors." Throughout his long life and in spite of arduous commercial duties, plant-collecting was his master enthusiasm. After his retirement in 1917 he was able to devote himself almost exclusively to his botanical pursuits: he then presented his herbarium to the Division of Botany, Pretoria, and continued to collect for the National Herbarium when established. He also published "The Native Timber Trees of the Springbok Flats," "The Botanical Survey of the Springbok Flats," "The Flora of the Drakensberg," etc. His energy was unbounded, and nothing would content him but to climb and botanise upon every high mountain he could reach: the writer well remembers his ascent of the Great Winterhoek from Tulbagh in 1934, at the age of 76. He was a Member of the Botanical Society since 1925.

Sir Albert Seward, F.R.S., whose death occurred on 11th April 1941, was an Honorary Life Member of the Botanical Society, having been elected by the Council of the Society in 1929 on the occasion of the visit to South Africa of the British Association for the Advancement of Science, when he was President of Section K (Botany). He was 77 years of age, and had been for 30 years Professor of Botany in the University of Cambridge, and for 21 years Master of Downing College. He was outstandingly successful as an administrator, author and editor, as well as being one of the foremost authorities on palaeobotany: his great work on Fossil Plants (four volumes, 1898-1919) being a most valuable book of reference, and his "Plant Life through the Ages" (1931) a masterly exposition of a vast subject.

Dr. Hans Schinz, who died in October, 1941, was for many years Director of the Botanical Garden and Museum of the University of Zürich. Some of his earliest botanical work (1885 onwards) was based on his travels in Great Namaqualand and other parts of South Africa. Throughout his life his contributions to systematic botany were numerous and learned. A noteworthy "Festschrift"

was dedicated to him by his fellow workers and ex-students in 1928. He was a member of the Botanical Society of South Africa from 1921.

One of the most deplorable of the many destructive processes which are going on in the Union is the indiscriminate cutting of our indigenous trees for firewood. In many of the semi-arid districts the veld is now quite denuded of trees, and the spoliation is going on ever further from the centres of population, so that there are few areas of savannah and few karoo river-beds which are not being speedily ruined. The Botanical Society has pointed out this evil (*Journal* 1940, p. 4) and has advocated measures to cope with it, but economic forces are strong and firewood is a necessity of life.

An attempt has now been made in Griqualand West, under the powers obtained by the Forest and Veld Conservation Act of 1941, to stop this veld-stripping process, and a number of the more valuable species of trees have been declared protected in that district. (*Diamond Fields Advertiser*, 24th November, 1941). Now everything depends on vigorous administration. The experiment will be warmly applauded and the results watched with interest.

Many of the showy annuals of the Cape have been grown successfully in Transvaal gardens, and splendid displays of them have been produced without too much trouble. The Cape bulbs are a little more difficult, but considerable success has been obtained in the admirable garden of indigenous plants known as "The Wilds," established by Mr. van Balen, head of the Parks Department of the City of Johannesburg. The most surprising of many interesting results, however, is the growing and flowering in Johannesburg of some of our Cape Proteas and Heaths, both at "The Wilds," on the Munro Drive and in the private garden of Mr. G. W. Reynolds at Aasvogels Kop. A photograph of a fine bloom of *Protea cynaroides*, grown beside the Munro Drive, appeared in the *Rand Daily Mail*, 6 June, 1941: close by flowered a plant of *Serruria florida*, the Blushing Bride. These Cape plants are really appreciated in Johannesburg, where they have already a score of different Proteaceae and a large number of Ericaceae in various stages of development.

The Gardens require two or three copies of the 1917 and 1918 issues of the Journal of the Botanical Society, and will pay 5s. for each copy accepted. Members who may happen to have these parts to spare are requested to communicate with the Director.



# Weeds: The "New" Cape Flora.

By R. S. ADAMSON.

IN the course of the earth's history evolution has been in operation and the plants in each region have become adjusted to the conditions existing there. Any change of these conditions brings about a change in the flora, large or small as the case may be. During the later centuries man has become the main factor in the production of changes in the conditions for plants. The progress in man's occupation of and control over any region is marked by an ever-growing zone of alteration in the flora. Cape Town is a very favourable place for the study of these changes because its settlement by Europeans is relatively very recent and the original flora is a very characteristic one.

As an instance of how far the flora has changed a visitor recently spending a short time here collected specimens of plants within a mile or so of the suburbs. Of 50 plants collected 41 were not original natives of this country. What are these plants and when and whence did they arrive here? Some of these questions are readily answered, others much less so.

The alien plants that have established themselves here are a varied assemblage and of very varied origins. Some were introduced deliberately either for use or for ornamental purposes and have spread by seed from such sources. Pines and wattles are examples of large plants, while among smaller ones are a number of fodder grasses, lucerne, and saltbush. Of the introductions of this kind of course only a certain percentage are able to spread about by themselves. Pines, wattles, and some others have found conditions here well suited to their needs. On the other hand the oak, though brought out earlier and planted widely, has spread by itself very little. The prolonged drought in summer is very often fatal to its seedlings.

A much larger number of plants have no apparent use and appear to have arrived accidentally. The great majority of these are annuals or plants with some very easy method of multiplication. These accidental arrivals have come in fodder, packing materials, as contaminations in seed supplies, or by other means. Some of them are plants which have followed Europeans to almost every quarter of the globe, for example, *Stellaria media* (Chickweed), *Poa annua*, *Chenopodium* spp. (Goosefoot), and others.

These alien plants, however they first came, are very varied in the degree to which they have become settled in their new home. Roughly speaking, one can make out three classes, though of course the classes are by no means sharply separated. First there are the plants which never occur far from the source of supply of seed or other means of starting; there are garden strays and casuals found near the docks, in rubbish dumps, and so forth. They include plants which may have little chance of ultimate survival and recent arrivals that have not had time to spread. Second is a large group of plants, some exceedingly common, which are confined to open or disturbed land where the native flora has been partly or completely destroyed. Included here are the common weeds of roadsides and of gardens or cultivated land. The third group contains those plants which have spread beyond the disturbed areas into those occupied by native plants and which take part with them in building up the vegetation.

These three classes to a considerable extent represent stages in adjustment of the plants to the conditions here. The first class has been much less studied than the others, many of the plants here are temporary sojourners which appear for a time but do not continue. The third class is in many ways the most important. In it are plants more completely settled than in the others and which by associating with the indigenous flora are at any rate beginning to bring about changes that are not directly associated with man's activities. Wattles, pines, and *Hakea* are obvious examples that have brought about profound changes. There are in addition many smaller plants which now occur as part of the vegetation far from any disturbance and have become a part of the flora. As examples are *Aira caryophylllea* (Hair grass), *Briza maxima* (Quake grass), *Poa annua*, *Polycarpon tetraphyllum*, and *Anagallis arvensis* (Pimpernel). In the same category but less wide-spread are *Lythrum hyssopifolium* (Loosestrife), *Juncus bufonius* (Toad rush), *Vulpia bromoides*, and *Phalaris minor* (Canary grass), to mention only a few. *Sagina ciliata* (Pearlwort) is found on footpaths almost to the summit of the mountain. In permanent water on the Flats *Eichornia crassipes* (Water hyacinth) is spreading very rapidly and tending to drive out native species. It has eliminated the native blue water lily from one of its last localities on the Peninsula.

A number of plants come in an intermediate position between those of the second and third classes. Among these are several grasses of which mention may be made of *Paspalum dilatatum*, *Dactylis glomerata* (Cock's foot), *Digitaria sanguinalis* (Finger grass), *Lagurus ovalis* (Hare's foot) and such plants as *Atriplex semibaccata* (Saltbush), *Senecio pterophorus*, and others that are beginning to invade native vegetation but at present do not extend far beyond the zone of man's activities.

The alien plants that are found here have arrived from most varied places. South African plants which are not original natives of the Peninsula are not numerous but are represented by some which have spread from cultivation, e.g. *Solanum* spp., some of unknown source as *Senecio pterophorus*, and a few which have certainly arrived with cattle or sheep. Several native species have increased greatly as the result of disturbance.

By far the greatest number of the alien plants are of European origin and have come especially from the Mediterranean region where the climatic conditions are so closely similar. The very large number is, of course, a reflexion of the continuous trade.

America has contributed its quota, especially South America and Mexico. Of South American origin are *Verbena bonariensis*, *Physalis peruviana* (Cape Gooseberry), *Oenothera* (Evening primrose), *Eichornia crassipes* (Water hyacinth), *Amaranthus deflexus*, and *Coronopus didymus* (Wart cress). Mexico has given us *Argemone mexicana* (Mexican poppy), *Chenopodium ambrosioides*, and others. The number emanating from U.S.A. is much less but includes *Xanthium* spp. (Burr), *Phytolacca* spp. and a few others.

From Australia come the wattles, *Haëa*, *Leptospermum laevigatum* (Australian myrtle), and saltbushes. All these were at first deliberate introductions. It is worthy of note that Australian plants have been less successful in spreading in this country than have South African ones been there.

Asia has not provided very many species and those that do occur have spread from cultivation. An example that has been spreading rapidly in recent years is *Chenopodium giganteum* which was first introduced as a fodder plant for drought-stricken areas.

The time at which these alien plants arrived and the length of time that is required for any of them to become

established make a fascinating study but is one on which present knowledge is far from exact. Deliberate introductions can be dated more or less exactly but with the much more numerous accidental ones this is rarely the case. Even botanists are apt to pay little attention to aliens and unfortunately least of all to aliens that do not seem well established, with the result that there is very little information about the time when most of the plants may have started. Some have without doubt been here for a long time and presumably arrived about the same time as the white man. In this connection it is worth noting that two of the species of *Oenothera* (Evening primrose), were described and drawn in 1793 from plants obtained at Cape Town though both are indigenous to South America. Other plants seem to be much more recent arrivals.

In 1903 Bolus and Wolley-Dod published a list of the plants found on the Cape Peninsula and in this list included a number of aliens which were then established. Of those included about 10 seem to have disappeared though a few of them may have been put in in error, but a considerable number of others occur. It is not, of course, to be assumed that all those now found which were not listed in 1903 have arrived since that date. Many were probably already here but not included as being not sufficiently well established or too obviously not native to warrant mention. There are, however, some that do seem to be of recent origin which have now become very abundant: among these are *Lavatera cretica*, a tall pink-flowered mallow, and *Tunica prolifera*, a small-flowered pink.

The assorted assemblage of foreign plants that grow here spontaneously undoubtedly now forms an important part of the flora and a part that shows every sign of being on the increase. Increase is both in area with the enlargement of the area of disturbance that necessarily accompanies a growing community, and in part by penetration of the native vegetation. Any weakening of the vegetation such as burning, grazing, or trampling, tends to help penetration. Roads of course form an obvious path for the spread of these aliens.

How far these aliens will extend and to what extent they may cause a real change in the flora is uncertain and can only be discovered in the future but their progress opens up a most interesting field for study and one that is open to anyone with any interest in wild plants.





PLATE III: The Ruins of the old Homestead at Kirstenbosch about 1900.



are being built there  
 has it to go for  
 21 years at 5  
 a year

(C) Whith.

GROOTE SCHUUR.  
 ROODEBOSCH.  
 CAPE TOWN.

Dear Mr. Bainforth

I have an  
 old house without roof  
 at Kimberley if you  
 can get a reasonable  
 estimate for repair I  
 will do it but do  
 not ask me for too  
 much as my obligation

SECRETARY'S OFFICE.



Kimberley

18

Dear Mr. Bainforth.

£500.

would find but have  
 in a condition to meet  
 your views will  
 expend that soon but  
 the house may be real  
 too bad have not been  
 in it for years.

I have told you £500 y. C. Rhodes

# Drug Plants.

By F. W. THORNS.

WAR conditions have once again interrupted the normal distribution of the world's goods, with the result that many commodities which are usually plentiful and cheap are becoming scarce and expensive. Drugs for medicinal purposes are one important group of substances that may be difficult to obtain from the usual overseas sources, and a possible shortage will have to be met by the production of home-grown material. For many years a small collection of medicinal plants has been kept going in the Economic Plant section at Kirstenbosch, and it is an established fact that many drug plants could be successfully grown locally, the main difficulty being that in normal times the ruling prices for crude drugs are too low to encourage prospective growers. These notes have been compiled with the object of assisting those who might wish to grow drug plants during the present emergency.

Four plants have been selected, firstly because they are the source of drugs that are of great importance in medicine, and secondly for the fact that they have proved to be of easy cultivation at Kirstenbosch. They are *Atropa Belladonna*; *Digitalis purpurea*; *Datura Stramonium*; and *Hyoscyamus niger*. A limited amount of seed of these plants is available for distribution in small quantities to prospective growers, the only condition being the usual one, that a brief report on results achieved be submitted to the Gardens in due course.

*Atropa Belladonna* has been recently reintroduced to Kirstenbosch, it having dropped out of the collection several years ago for some reason, but the others have been in continuous cultivation for many years. The notes on cultivation are drawn from actual experience with the growing of these plants, under conditions very similar to those employed in small-scale vegetable growing.

Harvesting of these drugs at Kirstenbosch has been confined to a few small samples taken at irregular intervals, and therefore no detailed information is available on this work, nor can the questions of yields or marketing methods be dealt with here. Harvesting is a comparatively simple matter, however, and the notes given of this process have been checked with literature dealing with drug production in other countries.

*Digitalis purpurea* (Scrophulariaceae), the common "Foxglove," is a poisonous biennial plant, often seen in

gardens in this country. The broadly tongue-shaped leaves, which form a close growing tuft, contain two important glucosides, digitalin and digitoxin. The plant is indigenous to Europe, where it withstands considerable frost. Although usually seen growing wild in moist, sheltered woodlands, it is reasonably adaptable, and has been grown at Kirstenbosch in an open situation in poorish sandy soil with very little water. Under these conditions flowers are not freely produced, the plants sometimes remaining three or four years before flowering. A similar tendency was observed among *Digitalis* plants growing in moist sub-tropical conditions on the Natal coast a few years ago, although here the plants were inclined to rot after the second year. Since it is the leaves that are required for the purpose of drug production, this failure to flower normally under open field conditions would not appear to be a drawback, and may possibly be an advantage.

The methods employed in cultivating *Digitalis* are those used by most gardeners when growing flowering plants. The seeds, being very small, must be sown thinly in well prepared beds or seed tins and given the shelter of a garden frame or shade. The seedlings may be pricked out when large enough to handle, or if sown very thinly may be left until ready for planting out into field rows. Early spring is the time to sow the seeds. There seems no reason why the usual method of raising tobacco plants should not be entirely suitable for *Digitalis*.

For good yields it is recommended that *Digitalis* be grown on reasonably fertile soil. The plants would need to be spaced at least a foot apart in the rows, and the rows arranged according to the methods of cultivating, weeding, etc. to be employed. It must be remembered that the crop will occupy the land for at least two seasons, during which period continual cultivation will be necessary.

Harvesting commences when the leaves are large enough, which should be towards the end of the first season. The fullgrown leaves must be gathered and carefully air-dried in shade, after which they may be stored away from moisture and light. One gathering per year is the rule.

*Atropa Belladonna* (Solanaceae), "Belladonna," or "Deadly Nightshade," is a large-growing herbaceous perennial from Europe. Its leaves are ovate, and the branching stems bear dull purplish flowers, followed by

shining black berries. All parts of the plant are poisonous, an alkaloid, hyoscyamine, from which atropine is prepared, being obtained from the leaves and roots.

Belladonna seeds are small, and must be sown in sheltered seed beds or frames in early spring. The seedlings may be pricked out when large enough, and planted out into the field when they have formed a good root system. In general, the method of propagation is that usually given to tomatoes. Belladonna plants require fairly good soil conditions, with some form of irrigation, such as is needed to produce good quality vegetables. Plants should be spaced two feet apart in rows, with a distance of three feet between the rows.

Belladonna leaves are harvested by hand picking when the plants are in bloom. One picking only may be made in the first season, but two crops can be collected during subsequent years. The leaves are shade dried.

After about three years the plants become unprofitable for leaf production, and may then be dug up for harvesting of the roots. These are washed and dried thoroughly, either in the sun or with slight artificial heat.

**Datura Stramonium** (Solanaceae) is a common weed in South Africa, well-known as "Stinkblaar." It is an annual with trumpet-shaped flowers, prickly seed capsules and large broad leaves. The plant is poisonous, the parts used for drug purposes being the leaves and seeds. These contain the alkaloids hyoscyamine and hyoscyne.

It is possible that material could be harvested from plants growing wild in orchards, old lands, etc., in areas where the plant is common. In any case cultivation is simple, the seed being drilled into rows three feet apart in

spring, and the seedlings afterwards thinned out to about fifteen inches.

The leaves are gathered when the plant is in full flower, or alternatively the whole plant may be reaped and the leaves stripped after the whole plant has been shade-dried. Ripe seeds may be threshed from the capsules after the leaves have been stripped.

Two other species of *Datura*, *D. Metel* and *D. ferox* are cultivated at Kirstenbosch. They are supposed to have properties similar to *D. Stramonium*, but are apparently not in such great demand.

**Hyoscyamus niger** (Solanaceae), "Henbane," is a poisonous European plant, usually biennial in its native habitat, but annual at Kirstenbosch. The plant is hairy, about two feet in height, with dull-coloured purple-veined flowers. The alkaloids hyoscyamine and hyoscyne are obtained from the leaves and flowering tops of this plant.

The cultivation of *Hyoscyamus* may present some difficulty unless special care is taken. Our usual practice is to sow the seeds in situ, but germination is not always certain in an open situation. Plants raised under nursery conditions do not always transplant easily, and to ensure success it is recommended that seeds be sown in shelter, and the seedlings carefully pricked out in such a manner that at planting time the young plants may be moved with an absolutely undisturbed ball of earth. Seeds should be sown in early spring.

Harvesting consists of gathering the flowering tops and upper parts of the plant when in bloom. In areas where *Hyoscyamus* grows as a biennial the radical leaves are also collected, but when an annual these leaves are not well developed. The material must be air dried in shade.



# THE BOTANICAL SOCIETY OF SOUTH AFRICA.

ANNUAL REPORT, 1940.

In submitting this, the Twenty-seventh Annual Report and Financial Statement of the Society, the Council have pleasure in noting the continued interest of Members in the activities of the Society during the year under review.

The Membership stands at 1,823, represented by 84 Life Members, 98 Family Members, 1,024 Ordinary and 617 Associate Members. These figures show a slight decrease as compared with last year, but the falling off is to a large extent due to the writing off of Overseas Members whose subscriptions have been long overdue and whose present whereabouts cannot be traced.

The Annual Grant to Kirstenbosch amounted to £1,086, being the largest amount so far donated for the maintenance and development of Kirstenbosch. The amount standing to the credit of the Life Members' Fund is £930 and Investments amount to over £1,960.

**ELECTION OF OFFICE BEARERS.**—At the Annual General Meeting held on 14th June, 1940, the following were elected:

*President:* W. Duncan Baxter.

*Vice-Presidents:* Lady Phillips, J. B. Taylor, and the Hon. Richard Stuttaford, M.P.

*Members of Council:* Dr. L. Bolus, Mr. A. H. Cornish Bowden, Professor R. H. Compton, Messrs. F. E. Cartwright, F. J. Duckitt, F. W. Metelerkamp, Dr. Bennie Hewat, Messrs. F. A. C. Guthrie, J. D. Krige, Miss Kathleen Murray, Messrs. A. J. Lambrechts, J. W. Mathews, F. P. Marais, Dr. H. A. Moffat, Messrs. W. Olive, C. J. Sibbett, Capt. Chas. Struben, Messrs. H. C. Starke, E. W. McL. Thomas, Miss E. L. Stephens.

At the Meeting of the Council held on 6th September, Mr. F. W. Metelerkamp was re-elected Chairman and Mr. F. E. Cartwright, Hon. Secretary and Treasurer.

**JOURNAL OF THE BOTANICAL SOCIETY.**—The Twenty-sixth issue of this was published at the end of the year and was distributed free to all members. Owing to the increased cost of plates, the number of illustrations was fewer than in recent years. The total nett cost of printing and distribution was £87 18s. 0d., from which may be deducted £30 received for advertisements.

The Journal contained, in addition to editorial news and notes and matter concerning the Society, an illustrated article by Miss W. F. Barker on the South African Haemodora-

ceae, an article on Humus and Soil Fertility by Mr. F. W. Thorns, and an account of Mountains and their Vegetation by Professor Compton. The frontispiece was a photograph of the enlarged Tea House at Kirstenbosch. The thanks of the Society are due to Professor Compton for his valuable assistance in editing this publication.

**ANNUAL GATHERING, 1940.**—This took place at Kirstenbosch on the morning of 26th September, in fine weather, the Gardens being in good spring condition. About 350 members and their friends attended. The catering was carried out by Miss Carter, Lessee of the Tea House. Speeches were delivered by the President of the Society, Mr. W. Duncan Baxter, and the Director of the Gardens, Professor R. H. Compton.

**WILD FLOWERS PROTECTION COMMITTEE.**—At the Meeting of the Council held on 6th September, 1940, the following were elected Members of the Wild Flowers Protection Committee for the ensuing year: Professor R. H. Compton, Dr. Bennie Hewat, Dr. H. A. Moffat, Messrs. F. W. Metelerkamp, J. J. Kotze, C. J. Sibbett, F. Guthrie, F. W. Duckitt and F. E. Cartwright. A report from this Committee for the year 1940 is attached.

Mr. G. W. Reynolds, the authority on Aloes, gave a public Lecture in Cape Town on September 10th, organised by the Society. The lecture was copiously illustrated with colour-photographic slides. There was a large attendance. Thanks are due to Mr. Reynolds for a very interesting evening, and to the Council and Principal of the Cape Technical College for the loan of their Hall.

**FLOWERS OF SOUTH-WEST CAPE.**—As the outcome of a discussion of the project to publish a book with coloured plates on "Flowers of the South-West Cape" a Committee consisting of Dr. Bolus, Miss Murray, Mr. F. E. Cartwright (Hon. Treasurer) and Capt. C. Struben (Chairman and Hon. Secretary), was constituted at the beginning of 1940 to further the scheme. A circular letter was sent to all Members of the Society and others likely to be interested. To the end of the year a sum of £234 had been subscribed of the total of £300 required, and 188 studies of Mrs. Garrett Rice's flower pictures had been received and lodged in the bank. They are paid for and covered by insurance. The cash balance at 31st December was about £37, leaving about £65 still to be obtained to acquire the 300 studies contemplated. Enquiries

## THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA.

as to printing and publishing have been set on foot and it is tentatively proposed to have a book of about 300 pages, 150 of which would be coloured plates and 150 pages of letterpress, for which Professor Compton has undertaken to be responsible. From the pictures already received, the book gives promise of being of outstanding interest and value.

OBITUARY.—Your Council has to report with regret the deaths of Mr. John McDonald, of Somerset West, and Mr. Walter Butcher, of Durban, Life Members; also that of Lady Phillips, one of the Vice-Presidents of the Society and a Member of Council.

KIRSTENBOSCH NEWS.—Volume VI. of the Journal of South African Botany was published during the year and included several valuable articles of botanical and general interest. Members of the Society enjoy specially reduced rates of subscription to this quarterly periodical.

The Annual Report of the National Botanical Gardens was circulated gratis to all members.

Members received, with their Journals, copies of the Seed Lists issued by Kirstenbosch and Whitehill from which they were privileged to choose. Gratis distribution of 5,286 packets of seed was made, mainly to Members, as a result.

The number of visitors to Kirstenbosch showed a further increase during the year, the total counted on Public Holidays, Saturday afternoons and Sundays, being 116,935. The numbers entering on other days are not recorded.

The enlargement of the Tea House has been very much appreciated by visitors, the new room for indoor service being most useful.

The establishment of the Gardens Herbarium in permanent quarters at Kirstenbosch marks an important step in the development and scientific utilisation of the Gardens.

Several members of the Kirstenbosch Staff are absent on active service; satisfactory temporary measures have been taken to carry on the work.

THANKS.—The Council begs to express its great indebtedness to the South African Association for the use of their Board Room for meetings of Council and Wild Flowers Protection Committee, and to the Press for their unfailing co-operation in reporting the proceedings of the Society.

F. W. METELERKAMP,  
*Chairman.*

F. E. CARTWRIGHT,  
*Hon. Secretary and Treasurer.*

## Report by the Wild Flowers Protection Section Committee for the Year Ending 31st December, 1940.

At the Meeting held on 10th December, 1940, Mr. F. W. Metelerkamp was re-elected Chairman and Mr. F. E. Cartwright, Hon. Secretary and Treasurer. During the year under review, Mr. H. N. Porter, of Johannesburg and the Hangklip Beach Estates, and Mr. C. S. Hubbard, District Forest Officer at Elgin, were co-opted as members of the Committee, in addition to Members previously co-opted.

**MEMBERSHIP.**—The membership of this Committee now stands at 276, being an increase of 80 as compared with the figures as at 31st December, 1939. As members are aware, the subscription to this Section of not less than 5/- per annum is in addition to that payable in respect of membership of the Botanical Society.

**FINANCIAL.**—The amount to the credit of the Committee at the Standard Bank was £161 17s. 2d.

**GENERAL.**—During the year a number of questions regarding the protection and preservation of our wild flora was dealt with by the Committee.

The alarming destruction of indigenous trees, more especially along the river banks in the northern parts of the Cape Province, was brought to the notice of the authorities. The question of the protection and prohibition of sale and export of the *Aloe polyphylla* from Basutoland was taken up with the High Commissioner, and it is gratifying to report that the steps now taken will provide ample protection. A protest was lodged in the proper quarter regarding the proposed felling in large numbers of Baobab

trees in the Northern Transvaal, and it is learned with satisfaction that, due largely to the action taken by interested bodies in the Transvaal, this danger has been averted.

During the year close touch was maintained with the Police, and it is gratifying to report that there seems to be a definite reduction in the sales of protected flowers, and that while hawking is still taking place in some areas, it is not so rampant as in the past.

**WILD FLOWER ORDINANCES.**—On 25th April, 1940, a deputation from the Committee waited on the Administrator and brought to his notice a number of matters in which it was considered that the Wild Flowers Protection Ordinance of 1937, as amended, as well as the Regulations issued thereunder, required amendment. After a full discussion, the deputation was assured that all the points raised would receive careful consideration with a view to the introduction of an amending Ordinance. It is, however, doubtful whether amending legislation with this object in view will be introduced during the 1941 Provincial Council Session, on account of the prevailing War conditions.

The question of the appointment of a paid Inspector under the Wild Flowers Protection Ordinance was also raised by the deputation, but the root of all evil appeared to be the stumbling block.

F. W. METELERKAMP,  
*Chairman.*

FRANK E. CARTWRIGHT,  
*Hon. Secretary and Treasurer.*



## THE BOTANICAL SOCIETY OF SOUTH AFRICA.

## BALANCE SHEET as at 31st DECEMBER, 1940.

|  | £   | s. | d. | £      | s. | d. |  | £   | s. | d. | £      | s. | d. |
|--|-----|----|----|--------|----|----|--|-----|----|----|--------|----|----|
| Life Members' Fund as at 31st December, 1939 .. .. .                               | 880 | 0  | 0  |        |    |    | Cape of Good Hope Savings Bank—                                  |     |    |    |        |    |    |
| Life Subscriptions received 1940 ..  | 50  | 0  | 0  |        |    |    | Deposit .. .. .  | 515 | 3  | 3  |        |    |    |
|  |     |    |    | 930    | 0  | 0  | Interest Accrued .. .. .   | 18  | 0  | 6  |        |    |    |
| Subscriptions paid in advance .. ..  |     |    |    | 51     | 5  | 6  |  |     |    |    | 533    | 3  | 9  |
| Subscriptions to the Karoo Garden, Whitehill:—                                     |     |    |    |        |    |    | United Building Society—   |     |    |    |        |    |    |
| Balance at 31st December, 1939   | 12  | 11 | 1  |        |    |    | Deposit Account at Interest 3% per annum .. .. .                 | 676 | 13 | 3  |        |    |    |
| Received 1940 .. .. .  | 91  | 15 | 0  |        |    |    | Interest Accrued .. .. .   | 16  | 18 | 7  |        |    |    |
|  |     |    |    |        |    |    |  |     |    |    | 693    | 11 | 10 |
|  | 104 | 6  | 1  |        |    |    | S.A. Permanent Building Society—                                 |     |    |    |        |    |    |
| Less—Remitted to Kirstenbosch  | 96  | 5  | 1  |        |    |    | Fixed Deposit 12 months to 30th April, 1941, at Interest 4% p.a. | 312 | 0  | 0  |        |    |    |
|  |     |    |    | 8      | 1  | 0  | Interest Accrued .. .. .   | 8   | 8  | 2  |        |    |    |
| Subscriptions to the Wild Flowers Protection Section:—                             |     |    |    |        |    |    |  |     |    |    | 320    | 8  | 2  |
| Balance as at 31st Dec., 1939  | 85  | 13 | 10 |        |    |    | At Call at Interest 3% p.a. ..                                   | 403 | 0  | 5  |        |    |    |
| Subscriptions received 1940 ..   | 74  | 12 | 0  |        |    |    | Interest Accrued .. .. .   | 10  | 16 | 2  |        |    |    |
|  |     |    |    |        |    |    |  |     |    |    | 413    | 16 | 7  |
|  | 160 | 5  | 10 |        |    |    | Sundry Debtors—  |     |    |    |        |    |    |
| Less—Stationery, Printing, Postages, etc. .. .. .                                  | 1   | 9  | 11 |        |    |    | For Advertisements in Journal, Part XXVI .. .. .                 |     |    |    | 26     | 0  | 0  |
| 5% on Subscriptions received, £183 4s. 6d. for credit of General Administration .. | 9   | 3  | 3  |        |    |    | Cash at Standard Bank—   |     |    |    |        |    |    |
|  |     |    |    | 10     | 13 | 2  | General Account .. .. .  | 164 | 12 | 8  |        |    |    |
|  |     |    |    | 149    | 12 | 8  | Wild Flowers Protection Section, Special Account .. ..           | 161 | 17 | 2  |        |    |    |
|  |     |    |    |        |    |    |  |     |    |    | 326    | 9  | 10 |
| Sundry Creditors—  |     |    |    |        |    |    |  |     |    |    |        |    |    |
| Specialty Press: Printing, Postage, etc., Journal, Part XXVI .. .. .               |     |    |    | 81     | 11 | 2  |  |     |    |    |        |    |    |
| Bailey-Taylor Show Card Issue: Balance in hand .. .. .                             |     |    |    | 6      | 7  | 7  |  |     |    |    |        |    |    |
| National Botanic Gardens—  |     |    |    |        |    |    |  |     |    |    |        |    |    |
| Surplus for 1940 .. .. .   |     |    |    | 1,086  | 12 | 3  |  |     |    |    |        |    |    |
|  |     |    |    | £2,313 | 10 | 2  |  |     |    |    | £2,313 | 10 | 2  |

## REVENUE and EXPENDITURE ACCOUNT for the 12 months ended 31st DECEMBER, 1940.

|   | £  | s. | d. | £      | s. | d. |  | £   | s. | d. | £      | s. | d. |
|---|----|----|----|--------|----|----|--|-----|----|----|--------|----|----|
| General Expenses .. .. .  | 26 | 11 | 4  |        |    |    | Subscriptions—                                     |     |    |    |        |    |    |
| Less—Charged to Wild Flowers Protection Section .. .. .             | 9  | 3  | 3  |        |    |    | Family .. .. .                                     | 188 | 9  | 6  |        |    |    |
|   |    |    |    | 17     | 8  | 1  | Ordinary .. .. .                                   | 873 | 4  | 11 |        |    |    |
| Clerical Assistance .. .. .   |    |    |    | 60     | 0  | 0  | Associate .. .. .                                  | 161 | 2  | 6  |        |    |    |
| Bank Charges .. .. .  |    |    |    | 4      | 8  | 9  |  |     |    |    | 1,222  | 16 | 11 |
| Stationery and Printing .. .. .                                     |    |    |    | 61     | 11 | 6  | Donations .. .. .                                  |     |    |    | 36     | 1  | 0  |
| Postages and Receipt Stamps .. ..                                   |    |    |    | 22     | 17 | 6  | Sale of Journals .. .. .                           |     |    |    | 2      | 5  | 0  |
| Annual Gathering at Kirstenbosch Journal, Part XXVI, 1940; Printing | 70 | 8  | 11 |        |    |    | Interest Account .. .. .                           |     |    |    | 58     | 1  | 8  |
| Less—Advertisements .. .. .   | 26 | 0  | 0  |        |    |    | Post Card Publication — Royalties received .. .. . |     |    |    | 3      | 14 | 5  |
|   |    |    |    | 44     | 8  | 11 | Sales of J. W. Mathews' "S.A. Plants" .. .. .      |     |    |    | 0      | 6  | 2  |
| Surplus for Year, 1940 .. .. .                                      |    |    |    | 1,086  | 12 | 3  |  |     |    |    |        |    |    |
|   |    |    |    | £1,323 | 5  | 2  |  |     |    |    | £1,323 | 5  | 2  |

Audited and found correct in accordance with the Books and Vouchers of the Society.

(Signed) W. A. HICKS, Auditor.

Cape Town, 18th February, 1941.

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(Signed) F. W. METELERKAMP, Chairman.

(Signed) FRANK E. CARTWRIGHT, Hon. Treasurer.

# List of Members of the Botanical Society.

(LIFE MEMBERS:      FAMILY MEMBERS:      Ordinary Members:      Associates.)

The star (\*) indicates Members who are also Subscribers to the Karoo Garden, Whitehill.  
The cross (†) indicates Members who are also Subscribers to the Wild Flower Protection Section.

In case of any inaccuracy in the following list it is requested that notification should be made to the Hon. Secretary,  
P.O. Box 267, Cape Town.

## Honorary Members:

†MATHEWS, J. W.  
PEARSON, MRS. H. W.

## A.

ABBOTT, W. C.  
†Abernethy, Miss O.  
Abrahams, Chief Rabbi  
Israel  
Ackerman, Miss A.  
Ackerman, D. J. J.  
Ackermann, Mrs. H. D.  
Adams, Mrs. E. V.  
Adams, Mrs. P. M.  
Adamson, Mrs. D. A.  
†ADAMSON, PROF. R. S.  
Adendorff, Mrs. P. J.  
†Aiken, Mrs. A.  
Akerman, Mrs. C.  
AKERMAN, C.  
Albrow, I.  
Albrecht, C. W.  
Albu, Lady  
Albu, Lady Gertrude  
Anderson, Miss D.  
Aldridge, K. W.  
Alexander, Mrs. J.  
Alhambra Community  
Garden Club.  
\*ALI, H.H. PRINCE  
MOHAMED  
ALICE, H.R.H. PRIN-  
CESS, COUNTESS  
OF ATHLONE.  
Allscheidung, H.  
Allison, J.  
Allison, Mrs. J.  
Alston, Mrs. L. R.  
Anderson, Dr. O. T.  
†Anderson, Colonel Sir  
L.  
Anderson, Capt. W. W.  
Andersson, E. J.  
Andersson, Mrs. E. J.  
Andrup, P.  
Anstey, Mrs. H. Manley  
Antel, Mrs. R. W.  
Aplin, Mrs. H. D.  
Appleyard, Mrs.  
Arbuthnot, Mrs. A. J.  
Arbuthnot, Miss I.  
Archbell, Mrs. J. E.  
\*Archibald, Mrs. L. I.  
Archibald, Miss B.

Armstrong, Major H.  
W.  
Armstrong, Mrs. W. H.  
Askew, F.  
ASHTON, DR. M. L.  
Atkins, Mrs. J.  
Attwell, Mrs. C.  
Attwell, R. I. G.

## B.

Babbs, A. T.  
Babbs, Mrs. A. T.  
Back, Miss E. E.  
Bacon, Lt.-Col. A. D.  
Bacon, Mrs. A. D.  
Bagshawe, Mrs. F.  
Bailey, Mrs. A. M.  
Baillie, Mrs. B. M.  
\*Bain, Mrs. A. G.  
Bain, W. G.  
Bain, Mrs. W. G.  
BAINES, COL. E. F. S.  
Baker, B.  
†\*Ballantine, Dr. A. J.  
Barclay, Mrs. H.  
Barclay, L.  
Barclay, W. S.  
Barker, Mrs. W. J.  
Barker, Miss W.  
†\*BARLOW, C. B.  
Barlow, Mrs. G.  
†Barlow, W.  
BARNARD, PROF. T.  
T.  
Barnes, Mrs. C. M.  
Barnes, H. D.  
†Barnett-Clarke, Mrs. G.  
M.  
BARRETT, P. N.  
†Barry, Mrs. A. J.  
Bartlett, Miss G.  
Barton-Smith, P.  
\*Basson, J. S.  
Basson, Miss M. M.  
Basson, N. J.  
Basson, Mrs. S. M.  
†BATEMAN, E. L.  
Bates, J. T.  
Bauling, Mrs. C.  
†\*Baumann, Mrs. F. E.  
†BAXTER, W.  
DUNCAN.  
BAXTER, MRS. W.  
DUNCAN  
Bayley, Miss M.

Bayly, Mrs. A. M.  
†\*Beard, Miss H.  
†Beard, H. K.  
Beattie, Sir J. C.  
Beck, Lt.-Col. A. A.  
Beck, Mrs. A. A.  
BECKROFT, E. E.  
Bell, Mrs. J.  
†Benjamin, Mrs. L. E.  
Bennet, Mrs. H.  
Bennett, A.  
\*Bennett, W. H.  
\*Bennett, Mrs. W. H.  
†Bennie, W. G.  
Bergh, Miss J. C.  
Berning, F. S.  
Bertenshaw, J.  
Bertram, Mrs. M. E.  
Beverley, Miss M.  
Beyers, Dr. C. F.  
Bezuidenhout, W. J.  
Biccard, G. J. V.  
Bickley, Miss  
Bickford-Smith, Mrs. J.  
O.  
Biggs, Mrs. F.  
Billing, J. E.  
Bingham, Mrs. H.  
Bird, Miss E.  
Bird, M. C.  
BIRT, CANON R. H. C.  
\*Bishop, P. J. G.  
Bisset, F.  
\*BISSET, W. M.  
\*Blackcard, Miss G. I.  
Blackburn, Miss D.  
Blackburn, Mrs. H.  
Blackburn, H. W.  
Blackburn, Miss L. M.  
Blackburn, T. H.  
Blake, Mrs. A. S.  
†\*Blake, H. G.  
Blakeney, J. M.  
\*Blandy, Mrs. G.  
Blathwayt, Mrs. G.  
†BLEEK, MISS D. F.  
Bligh, Mrs. Jack  
Bligh-Wall, Mrs. E. O.  
Bloch, N.  
†Blohm, Rev. W.  
†Bloomfield, Mrs. C. W.  
Blumberg, D. A.  
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- (a) To encourage the inhabitants of South Africa to take an active part in the progress and development of the National Botanic Gardens at Kirstenbosch, and the Karoo Garden at Whitehill, and to induce them to appreciate their responsibilities therein.
- (b) To augment the Government grants towards developing, improving, and maintaining fully equipped botanical gardens, laboratories, experimental gardens, etc., at Kirstenbosch and Whitehill.
- (c) To organise shows at which may be displayed the results of botanical experiments or cultural skill in improving the different varieties of South African flora.
- (d) To enlighten and instruct the members on botanical subjects by means of rambles, meetings, lectures and conferences, and by the distribution of literature.
- (e) To promote the preservation of the Native Flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

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FOUNDED JUNE 10th, 1913.

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All members have the privilege of sharing in the free distribution of surplus seeds from Kirstenbosch, on application to the Director of the Gardens. The Journal of the Botanical Society, published annually, is sent free to every Member. The Journal of South African Botany can be purchased by Members at reduced rates.

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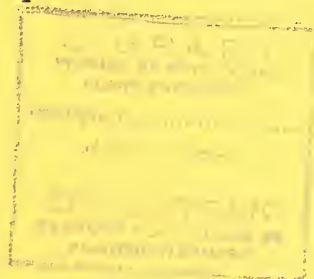
## OF SOUTH AFRICA

Edited by R. H. COMPTON  
M.A., F.R.S.S.Af., Director of the  
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Part XXVIII. 1942

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KIRSTENBOSCH,  
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PLATE I: Silver Trees and Sunshine at Kirstenbosch.



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# The Journal of the Botanical Society of South Africa.

EDITED BY R. H. COMPTON.

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PART XXVIII

1942

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(*Phot. Cape Peninsula Publicity Association*).

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## News and Notes.

IN spite of the competing and urgent claims of organisations connected with the war, it is very satisfactory to record that the membership of the Botanical Society shows virtually no diminution. We are glad to welcome numerous new Members and Associates, who by joining the Society have made good the losses due to resignations inevitable in present conditions. The Society paid over to Kirstenbosch the record amount of £1,086 in 1941, and in 1942 this was only slightly less, namely £1,068: the surplus available for payment in 1943 is £1,029. The Society and the Trustees of the National Botanic Gardens may congratulate themselves and one another on this state of affairs.

. . . . .

The Botanic Garden of the University of Cambridge has recently received what is said to be the largest bequest in the history of the University. The late Reginald Cory, who died in 1934, bequeathed the residue of his large estate to the Botanic Garden, and the trustees have now been able to realise this to great advantage, so that the Garden will in future receive an annual sum of £9,000 which will eventually rise to £13,000. Of this, only £1,000 per annum can be spent in maintenance, the remainder being available for capital expenditure. It is clear that the University now has a magnificent opportunity for development, and what has hitherto been one of the relatively humble of the world's botanic gardens should rapidly advance to become one of the greatest. It is to be hoped that further endowments may raise the income for maintenance to an amount commensurate with that now available for development.

. . . . .

Kirstenbosch has also recently had two bequests which are exceedingly welcome, though on a much smaller scale than that which has come to Cambridge. By the will of the late J. H. Curle, mining engineer, traveller and author, the sum of £1,000, free of Government duty, will eventually accrue to the Gardens. There is expected to be considerable delay in winding up the estate, but interest will be paid on this amount in the meantime.

Another valuable bequest to the Gardens during 1942 was made by the late J. H. Neethling, a Cape Town business man, who left the sum of £1,000 in trust, to be invested, and the income to be paid to the Trustees of the National Botanic Gardens in perpetuity.

. . . . .

Endowments such as these are of the greatest possible service to the Gardens, benefiting both its stability and its usefulness. As a result of the work of the thirty years since Kirstenbosch was founded, the Gardens are now in a position, given adequate financial resources, to develop into one of the world's outstanding establishments for the scientific study of plants. Nobody but a botanist can fully realise the extraordinary wealth of the flora of this country, or the field for research which it presents. The benefactor who will enable Kirstenbosch to make full use of its unique opportunities is still to be found, and his name will be as honoured as that of Reginald Cory in the University of Cambridge.

. . . . .

The six cottages for coloured workmen at Kirstenbosch have recently been equipped with electric light. The old thatch roofs have also been replaced by the much more serviceable wood shingles. They have well-fenced gardens, fixed baths with running water and water sanitation. Very few labourers' cottages in the country possess these elementary amenities. The Kirstenbosch cottages are let to approved employees at a very moderate rent, and are of great indirect value to the Gardens as well as to their tenants.

. . . . .

The Railway Horticultural Department, whose object is the improvement and beautification of stations and sidings all over the Union, is being reorganised on the initiative of the General Manager, Brigadier C. M. Hoffe. The development of gardens, however simple, at these lonely spots will not only render them more attractive from the Railway's point of view, but it should also provide occupation for the spare time of the staffs and the many intervals

during working hours when there is nothing for them to do. Kirstenbosch has been asked, and has agreed, to undertake the propagation of South African indigenous plants for use by the Railway Department. It is hoped that this work, which has begun on a small scale owing to war limitations, may later be greatly extended, to the advantage of the Railway and the increased usefulness of the Gardens.

The Herbarium of the National Botanic Gardens is the subject of a short illustrated article in this *Journal*, substantially the same as that communicated to the South African Museums Association at its meeting in Port Elizabeth and published in *S.A.M.A.B.* for September, 1942. Members of the Botanical Society and others who may wish to have plants identified may send specimens O.H.M.S. post free addressed to the Director, National Botanic Gardens, Kirstenbosch, Newlands, C.P. The Herbarium will gladly undertake the work free of charge, provided that the specimens are adequate, *i.e.*, as complete as possible and not mere scraps, and that particulars are given as to the locality from which they came.

School classes in Nature Study are a daily feature at Kirstenbosch, and Miss M. Johns, who is responsible under the School Board for conducting these classes, has contributed an article to this *Journal* on a typical day with a class in the forest. The change from schoolroom routine to direct contact with nature is stimulating and educative in the best sense: the work well deserves extension as soon as conditions permit.

Secrets of Nature are not always easily seen with the naked eye, and that is why we should have, at Kirstenbosch, some of the modern aids to teaching which can be obtained at a reasonable cost; and so Miss Johns (Teacher of Nature Study at Kirstenbosch) determined to obtain an epidiascope for the use of the scholars coming for Nature Study, Field Biology and Botany. Pictures, slides and living material can be shown magnified through such an instrument to large classes of children.

There were two difficulties, however, to be overcome, the first of which was—in war-time—to find a suitable epidiascope, and the second—to raise money for purchasing it. The first difficulty has been overcome and a second-hand British machine in excellent condition has been obtained. The second

difficulty is more than half overcome; thanks to donations from members of the Botanical Society, friends, some sailors of one of His Majesty's ships, and certain schools, plus the proceed of lectures given by Miss Johns on "Birds of the Cape Peninsula," the sum of £27 5s. has been raised. Very deep appreciation is expressed to the following, who have helped in providing the amount already obtained: Mr. W. Duncan Baxter; Mr. G. G. Smith; Mr. G. W. Reynolds; Mr. Crasnow; Mr. Larne; Professor R. H. Compton; Mr. J. T. Low; some sailors of "H.M.S. Formidable"; Mr. E. H. Kloot; "Anonymous"; Mrs. W. Handley-Smith; Mountain Road Girls' School; King's Road School; Vredehoeck Primary School; Girls' Junior School, Wynberg.

A deficit of £15 5s. still has to be met. There must be many Members of the Society who would wish to contribute towards this most useful piece of equipment for the benefit of the school Nature Study classes. Subscriptions can be sent to Miss Johns, Kirstenbosch, or to the Director of the Gardens.

Two members of the Kirstenbosch staff, Arthur Fairall and Pauline Bond, were married in January, 1943. Mr. Fairall was on the gardening staff and Miss Bond on that of the Herbarium. Congratulations and best wishes go to Mr. and Mrs. Fairall, both of whom are at present on active service.

Good news has been received from all the members of the Gardens staff on active service. Injuries have been few and slight, and promotions have been numerous.

To carry on the work at Kirstenbosch substitute appointments have been made and much reorganisation effected, so that a reasonable efficiency is being maintained, though development is almost at a standstill.

A welcome addition to the temporary staff of Kirstenbosch is that of Mr. M. R. Henderson, formerly Curator of the Herbarium of the Straits Settlements Botanic Gardens at Singapore. Mr. Henderson, who had been engaged in confidential war duties, was evacuated with his wife and small son, just before the fall of Singapore. They reached South Africa safely and Mr. Henderson was appointed to the post in the Kirstenbosch Herbarium temporarily vacated by Mrs. Fairall (Miss Bond), who is on active service.



The seventy-fifth anniversary of the foundation of the Torrey Botanical Club, premier botanical society in the United States of America, was celebrated in New York in June, 1942. The Botanical Society of South Africa was invited to send a representative, and appointed Mrs. Jerome Coombs, who paid an extended visit to South Africa and lived at the Kirstenbosch Hostel for many weeks in 1934, and who is the author of the excellent book "South African Plants for American Gardens" and an article in this Journal, 1935, entitled "From New York to Kirstenbosch and Back," and is an authority on horticulture, judging exhibits, floral arrangements, etc. Mr. Alain White, the joint author of the fine works on Stapelieae and Succulent Euphorbias, was also asked to represent the Society but was unable to attend the celebrations. Mrs. Coombs gives a very interesting account of the proceedings, which were attended by a noteworthy array of representatives and botanical celebrities from U.S.A., Britain, Canada, etc. She writes: "May I be allowed to tell you how greatly your Society was honored in the person of your Official Delegate, who was given, at the banquet, the place of honor between Dr. C. Stuart Gager, President of the Torrey Botanical Club and also Director of the Brooklyn Botanic Garden, and Dr. John S. Karling, of Columbia University, Chairman of the Celebration. This was due, I am quite sure, solely to the respect in which your Society is held by those in this far-away land." The Botanical Society may, on its side, regard itself as being fortunate in and greatly indebted to its distinguished delegate.

The Edward Muspratt Solly Scholarship, tenable at Kirstenbosch, was vacant during 1942, the income being added to the general funds of the Gardens in terms of the deed of gift. At the end of the year, however, the Trustees decided to appoint two Scholars for 1943, in view of the excellent University records of two of the candidates. These are Miss E. Wasserfall, M.Sc., of the University College of the Orange Free State, and Miss L. R. van Niekerk, M.Sc., of the University of Stellenbosch. Both Scholars will study systematics and herbarium methods in the Gardens Herbarium.

The Giant Protea, *P. cynaroides*, has recently received an Award of Merit from the Royal Horticultural Society. The plant exhibited was grown and

flowered from seed by a Member of the Botanical Society in England, Colonel Stephenson R. Clarke.

A century ago many of the South African Proteaceae were successfully grown in England, to the astonishment of all beholders. To-day, apart from individual specimens in one or two botanic gardens, they are no longer to be seen there. This is largely due to the fact that they rarely set good seed in cultivation under glass, cannot be grown easily from cuttings and will not stand severe pruning. *P. cynaroides* is one of the very few species which can be cut back hard and will sprout from the base: it is therefore the most suitable for cultivation overseas.

The scandal of mountain fires in the coastal belt of the Cape Province has now received attention in the Agricultural Department's official publication, "Farming in South Africa." We have called attention in this Journal again and again to the devastating effects of these fires and the anomaly that a landowner can do what he likes on his own land without any regard to the injury he is causing to his neighbours downstream and to the water-supply, climate, fertility and scenery of the country as a whole. The Cape Province newspapers have repeatedly pointed out the same flagrant evil, and have shown how we are heading straight for the "great South African Desert." The Agricultural Department, however, has been almost entirely silent on the subject, and there have been very few signs that the widespread alarm that has been felt at the ever-recurring destruction of the natural vegetation has been shared in official circles. In the April 1943 issue of "Farming in South Africa," however, Dr. J. T. R. Sim, Professor of Agronomy in the Stellenbosch-Elsenburg College of Agriculture, publishes an eloquent article saying once more exactly what has been said year in and year out by non-official observers. "All members of the community," he writes, "must realize clearly that the mountains are in a very bad way indeed, so bad in fact that their condition is becoming a menace to the public welfare, and that corrective measures have to be taken without delay."

Dr. Sim rightly lays stress on the fires deliberately caused by graziers. Accidental fires will always occur, no doubt, but intentional fires should be regarded as arson; legal restraint should be placed upon landowners preventing them from setting fire to their property, to the detriment of everybody else (including

their own posterity). "No-one," says Dr. Sim, "has the moral right to endanger the nation's water supply by burning the mountains. The mountains were never meant by Nature to be pastoral areas, and if livestock cannot be kept there without burning, then it is the livestock, and not the vegetation of the mountains, which must go." . . . "This means a radical reduction of the livestock, particularly goats, on the mountain ranges, possibly their entire removal."

Dr. Sim's outspoken remarks are most welcome: let us hope that they indicate that the Government is seriously inclined to tackle the problem created by the attempts of so-called farmers, whose chief agricultural implement is a box of matches, to graze stock on the entirely unsuitable vegetation of the Cape mountains. The Forest Department has already done much by acquiring mountain areas (which should never have been allowed to get into private hands), and in stopping the leasing of forest land for grazing: but a vast amount of education, marshalling of public opinion, watchfulness, enforcement of existing law, provision of protective services, and, as Dr. Sim hints, expropriation of the incorrigible "brand boer," is still necessary to save the country from this destruction. If anyone is inclined to question the need for action let him look at the results of fire-farming as shown by the present condition of the mountains in the Caledon district—the Klein River Mountains, Babylon's Tower, etc.—once the home of the richest flora in any part of the Union, now heaps of sterile rubble. The same hideous fate, through man's deliberate actions, is overtaking all our mountains.

One of the illustrations in Dr. Sim's article shows a mountain fire on the slopes behind Kirstenbosch Gardens! This may remind readers of the constant danger which threatens even the most carefully protected areas of vegetation as a result of the carelessness of smokers and picknickers, and it will explain the need for keeping paths and firebelts clear, which absorbs so much of the energies of the Gardens personnel.

The Grahamstown Nature Reserve, founded more than ten years ago, is an area of nearly 200 acres near the Mountain Drive and is a place of much natural beauty with a very interesting flora. The remarkable *Oldenburgia arbuscula* and the beautiful heaths *Erica Chamissonis* and *E. demissa* are among

its more striking features. The Reserve is administered by a local Committee, of which Lady Graham is President and Dr. W. A. Humphrey Hon. Secretary. The Grahamstown City Council discontinued its grant in 1937, but has now agreed to restore it, no doubt in recognition of the valuable asset which the Reserve represents to the City. This is welcome news, and it is to be hoped that the Reserve will continue to receive this and other support and will be relieved of the financial difficulties which always beset undertakings of this kind.

A copy of Part III, 1917, of this *Journal* is required by the Gardens, and any Member who has one to spare is requested kindly to send it to the Director, who will pay 5s. for it.

The *Journal* of the Botanical Society is distributed free to all Members and Associates of the Society. Additional copies of the current and previous Parts can be obtained from the Hon. Secretary, P.O. Box 267, Cape Town, at the following prices:—

Part XXVIII. Price to Members, 1s. 6d.; to non-Members, 3s.

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Parts not mentioned are out of print.

The present number of the *Journal* of the Botanical Society is more slender than its predecessors owing to Government restrictions on the use of paper and also the greatly increased cost of printing. It is hoped that Members will excuse its inadequateness in present circumstances.

With a view to further economy in paper the Annual Report of the Society is not now distributed to Members before the Annual General Meeting as a separate pamphlet. It is this year printed in the *Journal*, the publication of which is delayed in consequence. The present *Journal* therefore contains the Annual Reports and Accounts of the Society for both 1941 and 1942.



# The Herbarium of the National Botanic Gardens. Kirstenbosch.

By R. H. COMPTON.

KIRSTENBOSCH was founded nearly thirty years ago; the Karoo Garden at Whitehill eight years later. It may therefore seem strange that the Herbarium of the National Botanic Gardens has been so late in being established. If there is one feature which great botanic gardens all over the world have in common it is the possession of their own herbaria. Some museums have herbaria; in a few cases universities have herbaria; government departments in some countries have their special herbaria; but it may be said that every botanic garden worthy of the name of botanic has its own herbarium. So that Kirstenbosch is now falling into line with other purely botanical institutions the world over.

The reason for the late appearance of the Herbarium of the National Botanic Gardens is historical. The late Dr. Harry Bolus, one of the many enthusiastic amateurs who have contributed so much to our knowledge of South African flowering plants, bequeathed his large collection of specimens and books to the University of Cape Town. He died in 1911, two years before Kirstenbosch was founded. It was generally admitted that if Kirstenbosch had come into existence during his life-time, the Bolus Herbarium would have been bequeathed to the Gardens and would have made the institution a scientifically more complete foundation. As it was, the Bolus Herbarium went to the University of Cape Town.

Some years later the University took the step of erecting at Kirstenbosch, on land presented by the Gardens, the first section of a building to house the Bolus collections, the cost being defrayed from the Bolus bequest itself. So that Kirstenbosch now had a valuable herbarium on the spot, and a period of co-operation began between the two institutions which might have been permanent.

A few years ago, however, the University, for reasons which need not be discussed here, but which were a matter of acute controversy at the time, decided to move the Bolus collection to the main University site at Groote Schuur, four miles away. Thus Kirstenbosch, which had contributed largely to the growth of the Bolus Herbarium, was now bereft of the advantages of its presence there.

From the point of view of the Gardens, therefore, and the development of their own herbarium, some twenty-five years had been lost; and it was not until the Gardens had completed their first quarter-century that they could at last embark on the establishment of a herbarium which would be an essential and integral part of the institution.

It is just three years since the Kirstenbosch Herbarium began work in the building vacated by the Bolus Herbarium. In that time it has made rapid progress. The collection now numbers about 22,000 mounted sheets, with an average rate of addition of about 5,000 sheets per annum.

The Kirstenbosch Herbarium serves firstly the purpose of keeping the records, as it were, of plants grown in the Gardens—both Kirstenbosch and Whitehill. Secondly, it is a general collection of plants mainly native in the Western Cape Province, including collections of the local floras of Kirstenbosch and Whitehill.

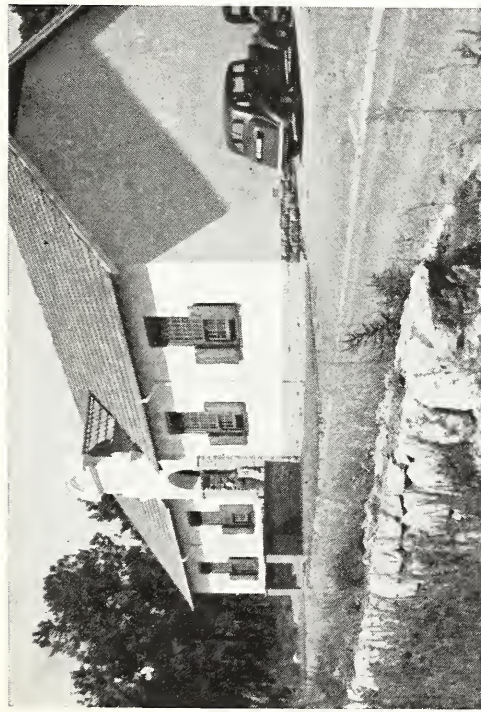
No attempt is made to develop the Herbarium on display or educational lines; it is regarded as an institution for systematic work and reference, leaving display to the botanical sections of museums, and botanical teaching to the universities.

The National Botanic Gardens issue a quarterly periodical, the *Journal of South African Botany*, which acts as a medium for the publication of work from the Herbarium as well as from contributors elsewhere. In this *Journal* it is endeavoured, as far as possible, to publish an illustration of every new species described; and the making of drawings for record in the Herbarium as well as for publication is regarded as important.

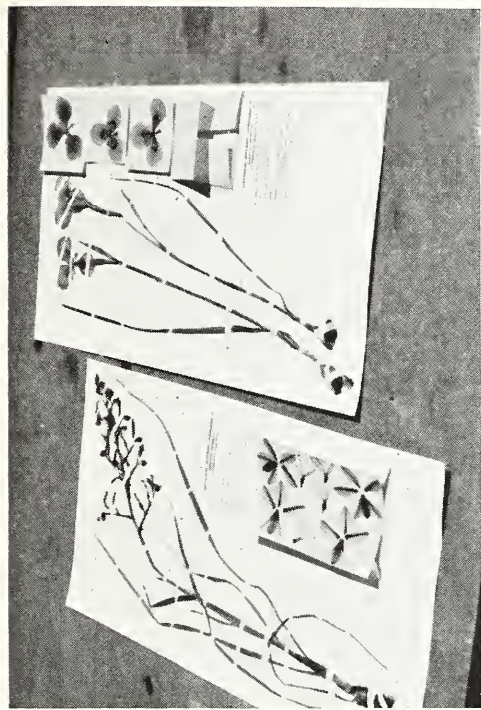
There are two or three points of technique used at the Herbarium, though they are not necessarily peculiar to it, which may be worth putting on record.

PAPER DRYING.—The absorbent paper used in drying specimens is dried in the sunshine whenever possible. A short length of fencing standards with three strands of twisted wires is used for hanging out the papers. The damp sheets are clipped together in bunches of ten or a dozen by means of two ordinary clothes-pegs near the ends of one of the

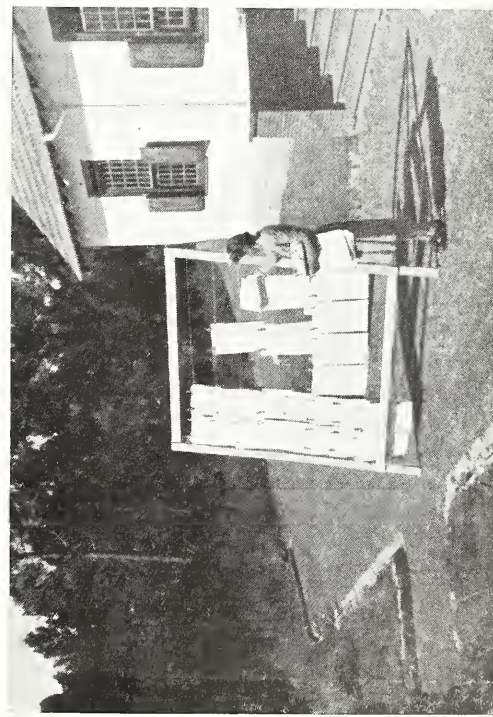




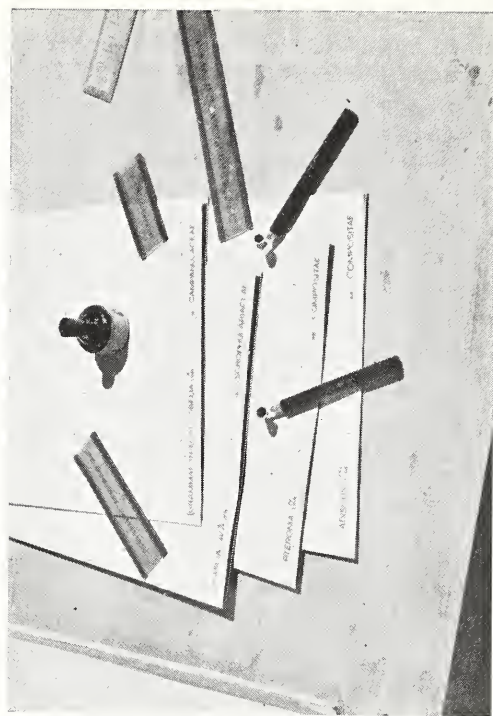
The first section of the building.



Mounted specimens, laid-out flowers, capsules and labels.



"Horse" for airing drying-papers.



Genus covers and stencil equipment.

PLATE II: The Herbarium of the National Botanic Gardens, Kirstenbosch.

(Phot. R. H. Compton).





(Phot. Cape Peninsula Publicity Association).

PLATE III. The Succulent Garden and Castle Rock, Kirstenbosch.

short edges, and each bunch is hung astride the wire. An hour or two in the sun and air is sufficient to dry the papers. In wet weather the papers have to be dried indoors. This is done in a small room with a tiled floor. A folding trestle "horse," about 6 feet 6 inches high, with several stretched wires, 8 inches apart, is set up. The bunches of papers, fastened with clothes-pegs, are hung on the wires, the sloping sides of the horse allowing a large number of bunches to be hung up simultaneously. A small electric radiator is placed on the floor beneath the loaded horse, and the hot air rises among the papers and quickly dries them: or the horse can be taken out of doors and used in the sun. The method is simple, rapid and effective and has completely overcome the difficulties occasioned by long spells of wet weather.

**STENCILS.**—The titles on the genus-covers are written in Indian ink by means of reservoir pens and two sizes of celluloid stencil strips ("Uno"). These can be obtained, in letters and numerals, from good office stationers. They are easy and rapid to use, and produce a much neater and more uniform result than hand-writing can do.

**LAYING OUT.**—Delicate plant structures, especially flowers, which ordinarily suffer seriously in drying, are dissected while still fresh and mounted on pieces of card coated thickly with gum arabic. The method is modified to suit requirements, with the object of allowing easy examination of the parts. The gum surface is moistened and the dissected parts are closely pressed to it. A piece of cellophane is placed over the preparation, which is then dried under pressure in a blotting-paper book. The cellophane does not adhere to the moist gum, and is removed when the preparation is dry. The mount is then preserved in a folded capsule on the same sheet as the main dried specimen; in some cases a capsule fronted with cellophane is used to obviate removal of the preparation. The method is used also for exhibiting leaf-surfaces such as those of *Haworthias*, and can be adapted to demonstrate size-variations, stages in anthesis, etc.

**PREVENTION OF MOULD.**—The building stands in a sunny and well-drained position and is not "damp"

in any way; but when the Bolus Herbarium occupied it some trouble was experienced with development of mould on specimens, and elaborate and costly methods of heating were used to combat the outbreak, but with unsatisfactory results. At present we are using ordinary wet and dry bulb thermometers; these are read each morning, and if they differ by less than three degrees a few portable radiators are switched on, irrespective of the actual temperature. There has been no trouble with mould since we adopted this simple procedure. On specially hot, dry days we open all the cabinet doors to give the contents an airing.

It may be mentioned that routine "poisoning" of specimens by means of a solution of mercuric chloride in alcohol, though it prevents mould developing in the process of drying, confers no permanent immunity. Chemical tests showed that no trace of mercury can be detected in the specimens after a few weeks. The ordinary insect-repellents (*e.g.*, naphthalene) used in cabinets do not prevent mould, but the effective control of atmospheric humidity is all that is necessary, except in a few instances of hygroscopicity.

## KIRSTENBOSCH

(*A tribute to the founder, Professor H. H. W. Pearson.*)

Here is a haunt for the Olympian mind;  
No puny brain conceived it; it was planned  
By one to whom fair Beauty had assigned  
Her wise custodianship. With cunning hand  
He made articulate her cloudiest thought,  
And, like a god, devised delicious ways  
To charm the votaries to Flora's court,  
Prolong her sessions to unnumbered days.  
Now hearts refreshed are the rich legatees  
Of him who worked with Nature for his stone,  
Building his edifice amid the trees  
That share his triumph, though he lived unknown.  
God has more architects than we may dream,  
But none more graciously expressed his theme!

A. C. PARTRIDGE.



# Nature Study in the Forest at Kirstenbosch.

By M. E. JOHNS.

“MISS! Can we go to the monkey ropes?” when asked in a wheedling tone by a small boy makes it hard to refuse; but in my scheme of Nature Study work at Kirstenbosch a visit to the forest and the “monkey ropes” can be made only when certain preliminary work has been done by a class. So that it is usually either Standard Five or Six in the Primary School which is taken up the mountain side to the forest.

Secondary biology classes are also taken to study the ecology of the forest, but the work is more detailed and intensive. In this article, however, I shall outline the work attempted with a primary class.

Before setting out from the Lecture Hall in the Gardens, each child is supplied with a collecting box or tin, a note-book and a pencil. A small first-aid outfit and a couple of trowels or hand forks are taken in case of emergency. If the weather is chilly, the children are advised to take cardigans or blazers, which can be tied round waists when climbing and worn when necessary. If it is necessary to have an inspection of shoe leather before setting out, I have found, usually, that those with unsuitable shoes can manage successfully bare foot.

An outline of what can be expected to be found in the forest can be given to the children before they leave the Lecture Hall, or it can be given *en route*, which I often find is more interesting.

Instructions about behaviour in the forest are given before we set out. I am dictator, benevolent I hope, and leader of the party and a blast from my whistle means “Stop instantly and listen to what I have to say.” The teacher of the class is to be at the rear and no-one is to be ahead of me or behind the teacher unless otherwise instructed once we are in the forest.

The number of children going on the trip is checked up and off we set from the Lecture Hall towards Chestnut Avenue, which is at the back of the Tea House, our aim being to go up Window Gorge as far as the Contour Path and to return by way of Skeleton or Nursery Gorge, depending upon the amount of time available.

In Chestnut Avenue there is quite a lot of interest to the naturalist; but we are aiming for the forest and instructions are given to the class to get to the

top of the Avenue as soon as possible and await my arrival. With a terrific burst of speed the children set off, sure that they will be there before me; but I usually arrive at about the same time as the first two or three less puffed than they are and am usually told, “I suppose you do it every day, Miss, and it's our first time up!”

While the children are regaining their breath they are told about the ruins of Colonel Bird's House and the Spanish Chestnut and the Oaks. Breath regained, we begin our exploration of the forest and start scrambling up towards Amaryllis Meet. At the first open space large enough for all of us to sit down we begin our study of the plant life. Above us are the tallest trees and shrubs forming the canopy, young trees and shrubs form an intermediate layer and we are sitting on the carpet. Epiphytes are noticed on rocks and tree trunks and the twiners and climbers which endeavour to get up to the light. However are we going to learn the names of the plants in the different layers! I could, of course, supply most of the names, but they will so easily be forgotten, so I show them the Key prepared by Dr. H. Bolus and the illustrations done by Miss Page in this Journal 1917 and 1923, in “Notes on the Native Trees and Shrubs of Kirstenbosch,” and often they use that for finding the names for themselves. Then comes the question of collecting material for pressing and sketching. These days I limit the number of specimens picked to four or six for the use of the class and I show how to collect a twig or branch without doing too much damage to the plant and the advisability of having flowers and fruit and normal arrangement of the leaves if it is possible. From the “intermediate layer” it is possible to get specimens as examples of the Canopy trees. It is not possible for primary children to remember too many names, but if we decide to learn to recognise Wilde Amandel, Katdoring, Sybas, Stinkwood, Hard Pear, Wild Olive, Rooi Els, Beukenhout, Pendoring, Swartbast, Wild Peach, Assegai-wood, White Pear, Keurboom, Kruisbessie, Waterboom, Yellowwood, Lepelhout, Ironwood, Kershout and Ouhout, we have twenty-one examples of trees and shrubs fairly common in the forest. Some of them the children are already familiar with as they have seen them growing in the cultivated parts of the Gardens. The common names are not hard to remem-

ber and easily understood whether given in English or Afrikaans by the majority of primary children.

Climbing or twining towards the light we see and collect the Forest Pea (*Dolichos*), Brambles, Monkey Grapes and Monkey Ropes. It is surprising how some of the Monkey Ropes have survived after generations of children swinging on them at Kirstenbosch, but they have done so. The art of swinging on a Monkey Rope is to test it to see if it will stand your weight and then make certain that the end of your swing does not land you in a bramble! No class of mine ever feels that it has had its proper amount of time on the Monkey Ropes; but, as I said earlier, I am dictator of the party, and off we go. Specimens of carpet plants have to be collected or sketched. There is the Forest Oxalis, Arum Lilies, Forest Cress and, in early March, Belladonna Lilies, and the crunch of our feet as we walk along the path and help to break up the fallen leaves which in time will return to the earth as humus.

In damp weather or after rain the epiphytic mosses and lichens and ferns show up well, and that is one of the reasons why I choose Autumn or Winter as the best seasons for going into the forest. The other reason is that all our indigenous trees at Kirstenbosch, except the *Celtis*, are evergreens and show up better than when the exotic oaks and poplars are in full leaf.

Not all our plant collecting is done in one spot: it is gradual and done as we climb up, either alongside the stream or on the recognised Window Path. It means that everyone in the class has the opportunity of picking at least one specimen and has the responsibility of remembering the name and characteristics for teaching purposes during, or at the end of, the trip.

So far I have not mentioned the animal life we may meet in the forest. At first I felt a little chary about doing so in a Botanical Journal; but it must be admitted by botanists that the dispersal of some seeds is done by creatures—and how the fallen giants of a forest would block and impede growth if no wood-boring creatures turned them into sawdust. We know that the Saprophytic fungi play their part, using up the already manufactured food in the dead trunks and branches; but the children and I enjoy ourselves searching under stones and in rotting tree trunks for earthworms, millepedes, centipedes, grubs of wood-boring beetles, mole crickets and carpenter bees, which do their share of tunnelling and boring and often making shelters and homes for non-vegetarians like spiders, peripatus, glow-worms and, very occasionally,

a small scorpion. While hunting for this cryptofauna each child does its own collecting and the only warning I have to give is that spiders, centipedes and scorpions are not to be handled. Few children care to handle spiders, centipedes are very agile and hard to catch, and scorpions are rare in our forest, so very seldom is my warning disregarded!

Learning to become a Nature detective is interesting in the forest: we listen to bird calls, try to identify Green Piet the Bulbul, with his plaintive call of "Piet, Pie—eet, what are you doing here?"; the squeak of the disturbed Thrush; the song of the Fly-catcher; the call of the White-eyes. We search for evidence of the Rock rabbit or the footprints of an occasional buck, or we may find a squirrel's dining-room table on a rock.

If the water in the Window Stream is not too cold, we may spend some time collecting and examining the fauna of the stream and find Caddis-flies and dragon-fly nymphs and tadpoles and frogs and river spiders and numerous other stream creatures.

We may have time to reach the Contour Path and walk along to the waterfall in Skeleton Gorge, and then come down the Skeleton path, dark with its overhanging tree tops. It is, for children, often less pleasant than going up Window Gorge, which is more dappled with sunlight; but they do see in Skeleton Gorge the struggle for light that plants in denser forest have. There are fewer carpet plants to be seen.

Discussions on the physical and biological factors may take place in the forest at an opportune moment or later in the Lecture Hall on water and soil and light, altitude and prevailing winds, and the part they play in the forests of our gorges.

Soon, too soon for some of the children, we are back at the Lecture Hall. Then after a rest and some refreshment we sort out our specimens, both plant and animal, and plan the kind of summary we are going to make on our visit to the forest. Some of the children have prepared charming and interesting booklets after their visit to the forest and these can be seen by visitors in the Lecture Hall.

Not everything is remembered by the children; but I trust that when next they visit any forest or woodland they will see it as a living community worth preserving and protecting.

I should apologise too for not using any generic or specific names for any of the plants or animals; but, like the children, I cannot remember them all and so have used the generally accepted "common" names!



# THE BOTANICAL SOCIETY OF SOUTH AFRICA.

ANNUAL REPORT, 1941.

Your Council have pleasure in submitting the Twenty-eighth Annual Report and Financial Statement of the Society and to state that, in spite of the difficult conditions prevailing as the result of the War, the interest of Members in our work continues unabated.

The Membership stands at 1,821, represented by 84 Life Members, 101 Family Members, 1,027 Ordinary Members and 609 Associate Members. These figures do not vary appreciably from those of last year, but they include a number of new Members, which additions are counterbalanced by the elimination from the Members' Roll of those whose present addresses cannot be traced and whose subscriptions are long overdue.

The Annual Grant to Kirstenbosch amounted to £1,068 8s. 9d., being a little less than the previous year; further, on this occasion, owing to the printing of the Journal being somewhat delayed, the cost of its production is not included in the Accounts. The amount standing to the credit of the Life Members' Fund is £955 and Investments total £2,006.

**ELECTION OF OFFICE BEARERS.**—At the Annual General Meeting held on the 10th June, 1941, the following were elected:—

*President:* Mr. W. Duncan Baxter.

*Vice-Presidents:* Professor R. H. Compton, Mr. J. B. Taylor and the Hon. Richard Stuttaford, M.P.

*Members of Council:* Dr. L. Bolus, Messrs. F. E. Cartwright, F. J. Duckitt, F. A. C. Guthrie, Dr. D. Bennie Hewat, Messrs. J. J. Kotzé, J. D. Krige, A. J. Lambrechts, F. P. Marais, J. W. Mathews, F. W. Metelerkamp, Dr. H. A. Moffat, Miss K. Murray, Messrs. W. Olive, H. N. Porter, C. J. Sibbett, H. C. Starke, Miss E. L. Stephens, Capt. C. Struben, and Mr. E. W. McL. Thomas.

At a Meeting of the Council held on the 5th August, Mr. F. W. Metelerkamp was re-elected Chairman and Mr. F. E. Cartwright Hon. Secretary and Treasurer.

**JOURNAL OF THE BOTANICAL SOCIETY.**—Part XXVII, 1941 contained articles by Professor R. S. Adamson on Weeds and by Mr. F. W. Thorns on Drug Plants; News and Notes by the Editor; four

full-page plates and the usual features. The thanks of the Society are due to Professor R. H. Compton, who has again been kind enough to undertake the editorship of this publication.

**ANNUAL GATHERING, 1941.**—This took place on 25th September in the new Lecture Room at Kirstenbosch. Refreshments were not provided on this occasion and a donation of £20 was made to the S.A. Red Cross Society in lieu of the money usually spent in this way.

**"KIRSTENBOSCH SUNDAY"** was held on 28th September and it is estimated that 4,000 people visited the Gardens in spite of threatening weather. As a result of a collection at this function, a sum of £82 18s. 9d. was handed over to the S.A. Red Cross Society. The occasion was definitely successful and is likely to be repeated.

**KIRSTENBOSCH NOTES.**—The rainfall at Kirstenbosch in 1941 was the record amount of 90.67 inches. Weather conditions generally were favourable and this, combined with improvements due to use of compost, etc., produced a very successful season with a good and prolonged display of spring flowers. Development work was almost at a standstill except for necessary terracing in the Nursery and improvements in the water supply.

**STAFF ON ACTIVE SERVICE.**—Seven out of the normal eleven members of the Kirstenbosch European staff had joined the forces by the end of the year.

**VISITORS.**—The number of visitors entering Kirstenbosch was not counted this year, but it was clear that it was at least as high as in recent years.

**HERBARIUM.**—A reception by the Trustees and Director was held on 1st September to enable members of the Council of the Botanical Society and others to inspect the Herbarium. During the year 6,063 sheets were added to the Herbarium, making a total of 15,971.

**JOURNAL OF S.A. BOTANY.**—Volume VII was published in four quarterly Parts. The chief feature was a series of articles on W. J. Burchell by Mrs. H. M. McKay. Members of the Botanical Society enjoy specially reduced rates of subscription to this periodical.



SEED LISTS.—5,249 packets of seeds were distributed free on request to members.

WILD FLOWERS PROTECTION COMMITTEE.—At the Meeting of Council held on the 5th August the following were re-elected Members of this Committee for the ensuing year: Mr. F. E. Cartwright, Professor R. H. Compton, Messrs. F. W. Duckitt, F. A. C. Guthrie, Dr. D. Bennie Hewat, Messrs. J. J. Kotzé, F. W. Metelerkamp, Dr. H. A. Moffat and Mr. C. J. Sibbett.

A Report from this Committee for the year 1941 is attached hereto.

“FLOWERS OF SOUTH-WEST CAPE.”—In regard to the project to publish a book with coloured plates on the Flowers of the South-West Cape, Captain Struben has reported to your Council that at the end of the year 251 Studies had been completed by Mrs. Garrett Rice and lodged with the Bank and that the funds for completion of the plates were in sight.

## Report by the Wild Flowers Protection Section Committee for the Year Ending 31st December, 1941.

During the year under review your Committee met on three occasions. At the Meeting on 21st November, 1941, Mr. F. W. Metelerkamp was re-elected Chairman and Mr. F. E. Cartwright Hon. Secretary and Treasurer. All co-opted Members were also re-elected. The appointment of a co-opted Member resident in the Transvaal has had beneficial results and is a step which will be extended to other Provinces as occasion arises.

MEMBERSHIP.—The Membership of this Section now stands at 279 as compared with 276 at the conclusion of the previous year.

FINANCIAL.—The amount to the credit of the Committee is £204 6s. 2d., an increase of £54 13s. 6d. for the year. Several projects which the Committee has in view have had to be held in abeyance until such time as conditions are more normal.

GENERAL.—During the year numerous matters in connection with the protection and preservation of wild flowers have received attention. The sale of protected flowers at railway stations has been brought to the notice of the Administration and representations have been made to local Authorities in regard to sites for the sale of flowers, wild flower reserves and notices in such reserves. The question of the sale in other Provinces of Cape Province protected flowers has been investigated, but up to the present with no

OBITUARY.—Your Council much regrets to announce the deaths of the following Life Members: Sir Arthur Hill, Director of the Royal Botanic Gardens, Kew, and Professor Sir Albert Seward, late of Cambridge University.

THANKS.—The Council begs to express its great indebtedness to the South African Association for the use of their Board Room for Meetings of Council and the Wild Flowers Protection Committee, and to the Press for their unfailing co-operation in reporting the proceedings of the Society.

F. W. METELERKAMP,  
*Chairman.*

FRANK E. CARTWRIGHT,  
*Hon. Secretary and Treasurer.*

9th March, 1942.

very tangible results. A circular by a Transvaal trading corporation, issued to landowners and others resident in this Province, offering to purchase protected wild flowers, was brought to the notice of the proper authorities and it is hoped that it will be found possible to take such steps as will deal effectively with this matter.

During the year the Police have given wild flower protection as much attention as their many other duties would allow and your Committee wishes to express its appreciation of their willing and helpful co-operation. Numerous prosecutions have taken place, and, as a result, the sale of protected flowers and also hawking and selling at unauthorised places do not appear to be so prevalent as in the past.

The conveyance, per motor lorry and at night, of large quantities of wild flowers for subsequent sale to hawkers and others in urban areas still continues. The question is a difficult one, but is receiving attention and in some instances the action taken has resulted in the cessation of the practice.

F. W. METELERKAMP,  
*Chairman.*

FRANK E. CARTWRIGHT,  
*Hon. Secretary and Treasurer.*

5th March, 1942.

# THE BOTANICAL SOCIETY OF SOUTH AFRICA.

## BALANCE SHEET as at the 31st DECEMBER, 1941.

|  | £   | s. | d. | £      | s. | d. |   | £   | s. | d. | £      | s. | d. |
|--|-----|----|----|--------|----|----|---|-----|----|----|--------|----|----|
| Life Members' Fund as at 31st December, 1940 .. .. .                     | 930 | 0  | 0  |        |    |    | Cape of Good Hope Savings Bank:                                   |     |    |    |        |    |    |
| Subscriptions received 1941 .. .. .                                      | 25  | 0  | 0  |        |    |    | Deposit at Interest 3½% p.a. ..                                   | 533 | 3  | 9  |        |    |    |
|  |     |    |    | 955    | 0  | 0  | Interest accrued .. .. .  | 18  | 13 | 1  |        |    |    |
| Subscriptions paid in advance .. ..                                      |     |    |    | 52     | 13 | 0  |   |     |    |    | 551    | 16 | 10 |
| Subscriptions to the Karoo Garden, Whitehill:                            |     |    |    |        |    |    | United Building Society:  |     |    |    |        |    |    |
| Balance at 31st December, 1940 ..  | 8   | 1  | 0  |        |    |    | Deposit Account at Interest 3% per annum .. .. .                  | 693 | 11 | 10 |        |    |    |
| Received 1941 .. .. .  | 102 | 14 | 6  |        |    |    | Interest accrued .. .. .  | 17  | 6  | 6  |        |    |    |
|  |     |    |    |        |    |    |   |     |    |    | 710    | 18 | 4  |
| Less—Remitted to Kirstenbosch ..   | 110 | 15 | 6  |        |    |    | S.A. Permanent Building Society:                                  |     |    |    |        |    |    |
|  | 106 | 15 | 6  | 4      | 0  | 0  | Fixed Deposit 12 months to 30th April, 1942, at Interest 3½% p.a. | 312 | 0  | 0  |        |    |    |
| Subscriptions to the Wild Flowers Protection Section:                    |     |    |    |        |    |    | Interest accrued .. .. .  | 7   | 7  | 2  |        |    |    |
| Balance as at 31st Dec., 1940 ..   | 149 | 12 | 8  |        |    |    |   |     |    |    | 319    | 7  | 2  |
| Subscriptions received 1941 .. ..  | 71  | 7  | 9  |        |    |    | Funds at Call at Interest 2½% p.a.                                | 417 | 3  | 6  |        |    |    |
|  |     |    |    |        |    |    | Interest accrued .. .. .  | 7   | 0  | 0  |        |    |    |
| Less—  |     |    |    | 221    | 0  | 5  |   |     |    |    | 424    | 3  | 6  |
| Donation in aid of "Flowers of South-West Cape" ..                       | £10 | 10 | 0  |        |    |    | Cash at Standard Bank:  |     |    |    |        |    |    |
| Donation in aid of S.A. Police Orphans' Fund .. .. .                     | 2   | 2  | 0  |        |    |    | General Account .. .. .   | 64  | 7  | 8  |        |    |    |
| Bank Charges .. .. .   | 0   | 10 | 11 |        |    |    | Wild Flowers Protection Section, Special Account .. .. .          | 220 | 2  | 0  |        |    |    |
| 5% on Subscriptions received to credit of General Administration .. .. . | 3   | 11 | 4  |        |    |    |   |     |    |    | 284    | 9  | 8  |
|  |     |    |    | 16     | 14 | 3  |   |     |    |    |        |    |    |
|  |     |    |    |        |    |    |   |     |    |    |        |    |    |
| Bailey-Taylor Show Card Issue:   |     |    |    | 204    | 6  | 2  |   |     |    |    |        |    |    |
| Balance in hand .. .. .  |     |    |    | 6      | 7  | 7  |   |     |    |    |        |    |    |
| National Botanic Gardens:  |     |    |    |        |    |    |   |     |    |    |        |    |    |
| Surplus for 1941 .. .. .   |     |    |    | 1,068  | 8  | 9  |   |     |    |    |        |    |    |
|  |     |    |    |        |    |    |   |     |    |    |        |    |    |
|  |     |    |    | £2,290 | 15 | 6  |   |     |    |    | £2,290 | 15 | 6  |

## REVENUE and EXPENDITURE ACCOUNT for the 12 months ending 31st DECEMBER, 1941.

|   | £ | s. | d. | £      | s. | d. |   | £   | s. | d. | £      | s. | d. |
|---|---|----|----|--------|----|----|---|-----|----|----|--------|----|----|
| General Expenses .. .. .                                    | 9 | 11 | 2  |        |    |    | Subscriptions:                                |     |    |    |        |    |    |
| Less—Charged to the Wild Flowers Protection Section .. .. . | 3 | 11 | 4  |        |    |    | Family .. .. .                                | 195 | 16 | 0  |        |    |    |
|   |   |    |    | 5      | 19 | 10 | Ordinary .. .. .                              | 806 | 10 | 0  |        |    |    |
| Clerical Assistance .. .. .                                 |   |    |    | 60     | 0  | 0  | Associate .. .. .                             | 143 | 5  | 0  |        |    |    |
| Bank Charges .. .. .  |   |    |    | 5      | 0  | 6  |   |     |    |    | 1,145  | 11 | 0  |
| Stationery, Printing, etc. .. .. .                          |   |    |    | 33     | 14 | 0  | Donations .. .. .                             |     |    |    | 13     | 6  | 0  |
| Annual Gathering at Kirstenbosch ..                         |   |    |    | 8      | 11 | 0  | Sale of Journals .. .. .                      |     |    |    | 0      | 3  | 6  |
| Donation to S.A. Red Cross Society                          |   |    |    | 20     | 0  | 0  | Interest .. .. .                              |     |    |    | 57     | 15 | 1  |
| Postage and Receipt Stamps .. ..                            |   |    |    | 16     | 7  | 7  | Post Card Publication: Royalties ..           |     |    |    | 1      | 19 | 0  |
| Journal, Part XXVII: Photos. ..                             |   |    |    | 1      | 1  | 0  | Sales of J. W. Mathews' "S.A. Plants" .. .. . |     |    |    | 0      | 8  | 1  |
| Surplus for year 1941 .. .. .                               |   |    |    | 1,068  | 8  | 9  |   |     |    |    |        |    |    |
|   |   |    |    |        |    |    |   |     |    |    |        |    |    |
|   |   |    |    | £1,219 | 2  | 8  |   |     |    |    | £1,219 | 2  | 8  |

Audited and found correct in accordance with the Books and Vouchers of the Society.

(Sgd.) W. A. HICKS, Auditor.

Cape Town, 2nd March, 1942.

(Sgd.) F. W. METELERKAMP, Chairman.

(Sgd.) FRANK E. CARTWRIGHT, Hon. Treasurer.

# THE BOTANICAL SOCIETY OF SOUTH AFRICA.

ANNUAL REPORT, 1942.

Your Council have pleasure in submitting herein under the Twenty-ninth Annual Report and Financial Statement of the Society for the year ending the 31st December, 1942.

It is gratifying to note that, notwithstanding the abnormal conditions prevailing as the result of the War, the interest of Members in the work of the Society has been maintained. The Membership Roll stands at 1,805 (1,821), represented by 84 (84) Life Members, 100 (101) Family, 1,028 (1,027) Ordinary and 593 (609) Associate Members, the figures in brackets being the corresponding numbers for 1941. A number of Members have joined during the year, but those accessions have been counter-balanced by the death and resignation of several Subscribers and by the deletion from the Roll of those whose subscriptions have been long overdue.

The Annual Grant to Kirstenbosch amounted to £1,028 18s., being £39 10s. 9d. less than the previous year, an encouraging factor in view of the abnormal times. The amount to the credit of the Life Members' Fund remains at £955 and Investments total £1,987 16s.

**ELECTION OF OFFICE BEARERS.**—At the Annual General Meeting held on the 27th March, 1942, the following were elected:

*President:* Mr. W. Duncan Baxter.

*Vice-Presidents:* Professor R. H. Compton, Mr. M. J. van Breda, M.E.C., and Mr. F. Cartwright.

*Members of Council:* Dr. L. Bolus, Mr. H. G. Botha-Reid, Mrs. H. Burton, Mr. F. A. C. Guthrie, Dr. Bennie Hewat, Mr. J. J. Kotzé, Mr. J. D. Krige, Mr. J. F. Martley, Mr. J. W. Mathews, Miss M. C. Maytham, Mr. F. W. Metelerkamp, Dr. H. A. Moffat, Miss K. Murray, Mr. W. Olive, Mr. H. N. Porter, Mr. C. J. Sibbett, Mr. H. C. Starke, Miss E. L. Stephens, Captain C. Struben, and Mr. E. W. McL. Thomas.

At the Meeting of Council held on the 20th of April Mr. F. W. Metelerkamp was unanimously re-elected Chairman and Miss M. C. Maytham elected Honorary Secretary and Treasurer. Miss Maytham's appointment followed the receipt by the Chairman of

a letter from Mr. Cartwright tendering his resignation on account of continued ill-health. Your Council would like to take this opportunity of recording their appreciation of the great services rendered to the Society by Mr. Cartwright. He was one of the prime movers in the formation of the Society and held the post of Secretary and Treasurer continuously from 1916 until his resignation. Owing to her intended departure for overseas Miss Maytham's resignation from the secretaryship in September was accepted with regret and Mr. L. A. Solomon was appointed in her place. Mr. Solomon has for many years past assisted Mr. Cartwright in the clerical side of his work.

**JOURNAL OF THE BOTANICAL SOCIETY, Part XXVIII, 1942.**—The publication of the Journal has been delayed in order to include this Annual Report. Owing to the restrictions on the use of paper and considerable increase in the cost of printing the size of the Part is necessarily much reduced.

**JOURNAL OF SOUTH AFRICAN BOTANY.**—Volume VIII was published in four quarterly parts during 1942. Several Members of the Society took advantage of the reduced rate of subscription which they enjoy (15s. per annum). The Volume contained an important monograph of the genus *Phyllica* by Mr. N. S. Pillans, much systematic material including a considerable number of descriptions of new species, a valuable article by Dr. W. E. Isaac on South African seaweeds of economic importance, an article by Mr. S. Garside on Baron Jacquin and the Schönbrunn Garden, a physiological paper by Dr. H. Weinmann, and an obituary of the late Dr. E. E. Galpin. Numerous illustrations were included.

**HERBARIUM.**—The Herbarium of the National Botanic Gardens at Kirstenbosch made considerable progress during the year, over 4,000 sheets of plants and illustrations being added, making a total of over 20,000 sheets at present in the collection.

**ANNUAL GATHERING, 1942.**—This took place at Kirstenbosch on Thursday, the 24th of September, in favourable weather and was well attended. As before, in lieu of the provision of refreshments, your Council authorised the donation of £20 to the South African



Red Cross Society. They have recommended that next year's Gathering should take place on a Saturday morning to enable schools to participate.

KIRSTENBOSCH SUNDAY was held on the 27th of September and was attended by over 4,000 people. Approximately £120 was collected at this function and handed to the S.A. Red Cross Society. Your Council wish to record their appreciation to Professor Compton and his helpers for this very satisfactory result.

KAROO GARDEN, WHITEHILL.—Subscriptions to this Garden of £90 5s. were received during the year, Membership of the Section remaining practically unchanged.

WILD FLOWERS PROTECTION SECTION.—The Membership of the Committee of this Section remains unchanged. A Report from this Committee for the year 1942 is attached hereto.

FLOWERS OF SOUTH-WEST CAPE.—The studies of wild flowers of the South-West Cape, comprising some 280 plates, have now been completed by Mrs. Garrett Rice. The responsible Committee, after full consideration, has decided to postpone the publication of this beautiful and outstanding work until times are more normal.

KIRSTENBOSCH NOTES.—During the year 336 lots of seeds, consisting of 4,302 packets, were distributed to Members of the Society. During the same period Kirstenbosch received 101 consignments of plants and seeds totalling 517 items. As last year no count was taken of the number of visitors to Kirstenbosch, but there is no doubt that the Gardens have appealed to increasing numbers of the public.

OBITUARY.—The Council desire to express their sincere regret for the loss the Society has sustained by the death of Sir James Rose Innes, P.C., K.C.M.G., in January last. Sir James was one of the Founders of the Society and was its President from the years 1915 to 1936, when he resigned on account of advancing years and ill-health. His interest in Botany was continuous and he was greatly concerned for the preservation of our native flora. The development of the Society was greatly helped by him.

THANKS.—Your Council wishes to express its indebtedness to the South African Association for the use of their Board Room for meetings of Council and the Wild Flowers Protection Committee and to the Press for their co-operation in reporting the proceedings of the Society.

F. W. METELERKAMP,  
*Chairman.*

L. A. SOLOMON,  
*Hon. Secretary and Treasurer.*

## Report by the Wild Flowers Protection Section Committee for the Year Ending 31st December, 1942.

During the year under review your Committee met on four occasions. At a Meeting held on 1st May, 1942, Mr. F. W. Metelerkamp was unanimously re-elected Chairman of the Committee. Miss M. C. Maytham was elected Honorary Secretary and Treasurer and on her resignation in September Mr. L. A. Solomon took over her duties. Co-opted Members previously serving, with the exception of Mr. M. S. Leibbrandt, were re-elected and the following additions to the co-opted list were made, viz.: Mrs. H. Burton, Mrs. G. W. Lyon, Miss K. Murray and Mr. W. C. West (nominated by the Mountain Club). Mr. C. S. Hubbard resigned during the year on leaving the Western Province on promotion.

MEMBERSHIP of the Section now stands at 290, an increase of 11 on the previous year.

FINANCIAL.—The amount to the credit of the Section is £264 12s. 6d., being an increase of £60 6s. 4d. for the year. Various projects involving expenditure which the Committee has under consideration are being held in abeyance until times are more normal.

DESTRUCTION OF INDIGENOUS TREES AND FLORA.—Your Committee having received reports of the destruction of Native Flora and Trees by road parties in order to provide fuel, correspondence was entered into with the National Road Board and the four Provincial Councils of the Union, and this has resulted in assurances that the necessary wood and coal will be furnished to personnel in order to obviate such destruction.

SALE OF CAPE WILD FLOWERS IN OTHER PROVINCES.—As a result of investigation it has been found that large quantities of wild flowers from the Cape, including a number of protected varieties, have

for some time past been sent by rail to other Provinces, more especially the Transvaal. Strong representations were made by your Committee to the Cape Provincial Administration as well as to the Postal and Railway Authorities and it is gratifying to be able to report that as a result a draft Ordinance has been gazetted, under the provisions of which the export of wild flowers from this to other Provinces will be allowed only under permit from the Administrator. While this will not prevent the export, under permit, of wild flowers grown under cultivation, it is hoped that the proposed legislation will reduce, if not entirely eliminate, the uprooting and destruction of our wild flora for export purposes.

GENERAL.—During the year at the request of the Committee the Administrator of the Cape has appointed all Members of the Committee Honorary Inspectors under Section 14 of the Wild Flowers Protection Ordinance.

A Sub-Committee has been investigating the subject of the creation of an increased number of Nature and Wild Flower Reserves in localities best suited for the preservation of our native flora and their Report on this vital question is expected to be made shortly.

Representations were made during the year to the Railway Authorities with a view of preventing the sale of Cape protected wild flowers at railway stations.

All Subscribers to this Section residing in the South-West Cape have been circularised asking them to use every endeavour to prevent the hawking of wild flowers, their sale at unauthorised places, and the plucking of protected species.

F. W. METELERKAMP,  
*Chairman.*

L. A. SOLOMON,  
*Hon. Secretary and Treasurer.*

THE BOTANICAL SOCIETY OF SOUTH AFRICA.

**BALANCE SHEET** as at the 31st DECEMBER, 1942.

[illegible]

## REVENUE and EXPENDITURE ACCOUNT for the 12 months ending 31st DECEMBER, 1942.

|  | £         | s.        | d.                |                                 | £          | s.       | d.                |
|--|-----------|-----------|-------------------|---------------------------------|------------|----------|-------------------|
| General Expenses .. .. .   | 18        | 13        | 8                 | Subscriptions:                  |            |          |                   |
| <i>Less—Charged to the Wild Flowers Protection Section</i> .. .. . | <u>3</u>  | <u>2</u>  | <u>6</u>          | Family Members .. .. .          | 190        | 12       | 0                 |
| Clerical Assistance .. .. .  |           |           | 15 16 2           | Ordinary Members .. .. .        | 821        | 2        | 0                 |
| Bank Charges .. .. .   |           |           | 64 11 0           | Associate Members .. .. .       | <u>152</u> | <u>2</u> | <u>6</u>          |
| Stationery, Printing, etc. .. .. .                                 |           |           | 4 12 10           |                                 |            |          | <u>1,163 16 6</u> |
| Postages and Receipts .. .. .                                      |           |           | 26 8 8            | Interest from Investments .. .. |            |          | 61 7 3            |
| Journal, Part XXVII, 1941:   |           |           | 18 19 10          |                                 |            |          |                   |
| Printing, etc. .. .. .   | 83        | 1         | 1                 |                                 |            |          |                   |
| <i>Less—Received from Advertisements</i> .. .. .                   | <u>29</u> | <u>0</u>  | <u>0</u>          |                                 |            |          |                   |
|  |           |           | 54 1 1            |                                 |            |          |                   |
| Annual Gathering at Kirstenbosch:                                  |           |           |                   |                                 |            |          |                   |
| Postage, etc., of Notices to Members .. .. .                       |           |           | 3 12 9            |                                 |            |          |                   |
| Donations to S.A. Red Cross Society .. .. .                        | 20        | 0         | 0                 |                                 |            |          |                   |
| <i>Less—Received from Members</i> .. .. .                          | <u>11</u> | <u>16</u> | <u>7</u>          |                                 |            |          |                   |
|  |           |           | 8 3 5             |                                 |            |          |                   |
| Surplus for the year 1942 .. .. .                                  |           |           | <u>1,028 18 0</u> |                                 |            |          |                   |
|  |           |           | £1,225 3 9        |                                 |            |          | <u>£1,225 3 9</u> |

Audited and found correct in accordance with the Books and Vouchers of the Society.

(Sgd.) W. A. HICKS, Auditor.

Cape Town, 21st January, 1943.

(Sgd.) F. W. METELERKAMP, *Chairman.*

(Sgd.) L. A. SOLOMON, *Hon. Treasurer.*



# List of Members of the Botanical Society.

(LIFE MEMBERS: FAMILY MEMBERS: Ordinary Members: Associates.)

The star (\*) indicates Members who are also Subscribers to the Karoo Garden, Whitehill.  
The cross (†) indicates Members who are also Subscribers to the Wild Flower Protection Section.

In case of any inaccuracy in the following list it is requested that notification should be made to the Hon. Secretary,  
P.O. Box 267, Cape Town.

- Honorary Members:*  
†MATHEWS, J. W.  
PEARSON, MRS. H. H. W.
- A.**  
Abbey, W.  
ABBOTT, W. C.  
†Abernethy, Miss O.  
Abrahams, Chief Rabbi Israel  
Ackerman, D. J. J.  
Ackermann, Mrs. H. D.  
Adams, Mrs. E. V.  
Adams, Mrs. P. M.  
Adamson, Mrs. D. A.  
†ADAMSON, PROF. R. S.  
Adendorff, Mrs. P. J.  
\*†Aiken, Mrs. A.  
Akerman, Mrs. C.  
AKERMAN, C.  
Albow, I.  
Albrecht, C. W.  
Albu, Lady  
Albu, Lady Gertrude  
Alderson, Miss D.  
Aldridge, K. W.  
Alexander, Mrs. J.  
Alhambra Community Garden Club.  
\*ALI, H.H. PRINCE MOHAMED  
ALICE, H.R.H. PRINCESS, COUNTESS OF ATHLONE.  
Allschwang, H.  
Alston, Mrs. L. R.  
Anderson, Dr. C. T.  
†Anderson, Colonel Sir L.  
Anderson, Capt. W. W.  
Andersson, E. J.  
Andersson, Mrs. E. J.  
Ansdrag, P.  
Ansotte, M.  
Anstey, Mrs. H. Manley  
Antel, Mrs. R. W.  
Aplin, Mrs. H. D.  
Appleyard, Mrs.  
Arbuthnot, Mrs. A. J.  
Arbuthnot, Miss I.  
Archbell, Mrs. J. E.  
\*Archibald, Mrs. L. I.  
Archibald, Miss E.
- Armstrong, Major H. W.*  
\*ASHTON, DR. M. L.  
Askew, F.  
Atkins, Mrs. J.  
Attwell, Mrs. C.  
Attwell, R. I. G.
- B.**  
Babbs, A. T.  
Babbs, Mrs. A. T.  
Bacon, Lt.-Col. A. D.  
Bacon, Mrs. A. D.  
Bagshawe, Mrs. F.  
Bailey, Mrs. A. M.  
Baillie, Mrs. B. M.  
\*Bain, Mrs. A. G.  
Bain, W. G.  
Bain, Mrs. W. G.  
BAINES, COL. E. F. S.  
Baker, B.  
\*†Ballantine, Dr. A. J.  
Barclay, Mrs. H.  
Barclay, L.  
Barclay, W. S.  
Barker, Mrs. W. J.  
Barker, Miss W. F.  
\*†Barlow, C. B.  
†Barlow, W.  
BARNARD, PROF. T. T.  
Barnes, Mrs. C. M.  
Barnes, H. D.  
†Burnett-Clarke, Mrs. G. M.  
BARRETT, P. N.  
†Barry, Mrs. A. J.  
Bartlett, Miss G.  
Barton-Smith, P.  
\*Basson, J. S.  
Basson, Miss M. M.  
Basson, N. J.  
Basson, Mrs. S. M.  
Batchelor, F. C.  
†BATEMAN, E. L.  
Bates, J. T.  
Bauling, Mrs. C.  
\*†Baumann, Mrs. F. E.  
†BAXTER, W.  
DUNCAN  
BAXTER, MRS. W.  
DUNCAN  
\*†Beard, Miss H.  
†Beard, H. R.  
Beattie, Sir J. C.  
Beck, Lt.-Col. A. A.
- Beck, Mrs. A. A.  
BEECROFT, E. E.  
Bell, Mrs. J.  
†Benjamin, Mrs. L. E.  
Ecnnet, Mrs. H.  
Bennett, A.  
\*Bennett, W. H.  
\*Bennett, Mrs. W. H.  
Bergh, Miss J. C.  
Berman, P.  
Bertenshaw, J.  
Bertram, Mrs. M. E.  
Beukes, MeJ. J. M.  
Beverley, Miss M.  
Beyers, Dr. C. F.  
Biccard, G. J. V.  
Bickley, Miss  
Billing, J. E.  
Bingham, Mrs. H.  
Bird, Miss E.  
Bird, M. C.  
BIRT, CANON R. H. C.  
Bisset, F.  
\*BISSET, W. M.  
\*Blackbeard, Miss G. I.  
Blackburn, Miss D.  
Blackburn, Mrs. H.  
Blackburn, H. W.  
Blackburn, Miss L. M.  
Blackburn, T. H.  
Blake, Mrs. A. S.  
\*†Blake, H. G.  
Blakeney, J. M.  
\*Blandy, Mrs. G.  
Blathwayt, Mrs. G.  
†BLEEK, MISS D. F.  
Blencowe, A. P. W.  
Bligh, Mrs. Jack  
Bligh-Wall, Mrs. E. C.  
Bloch, N.  
†Blohm, Rev. W.  
†Bloomfield, Mrs. C. W.  
Blumberg, D. A.  
Blumenfeld, Miss M.  
Bock, Miss S.  
BODDAM-WHETHAM, MRS. R. E.  
Bodenstein, Dr. H.D.J.  
Bohling, Miss R. V.  
Bolling, Mrs. E. T.  
Bolton, E. J.  
\*†BOLUS, Dr. L.  
Bond, Miss P.  
Bond, W. P.  
Bond, Mrs. W. P.  
Borchers, Mrs. D. H.  
Borchers, Mrs. J. S.  
Borchers, Mrs. R. B.
- \*Borlase, Mrs. E. A.  
Bosenberg, Mrs. C. H.  
ROSS, J. N.  
\*Boswell, Mrs. H.  
\*†Botha, Mrs. F.  
Botha, Miss M. L.  
Botha, Miss S.  
Botha-Reid, H. G.  
Botbner, Mrs. C.  
BOURKE, MAJOR M. E.  
Bourke, Miss M.  
Bourne, Lady  
Bowen, J. W.  
Bowles, W.  
Bowley, Mrs. M. A.  
Boyce Thompson South Western Arboretum.  
Boyd, H. C. W.  
\*Bradford, Mrs. H. J.  
BRAKHAN, A.  
Brantford, Paymaster Commander F. W.  
Bray, Mrs. W. M.  
Bredasdorp Wild Flower and Hort. Society.  
Breen, L. B.  
Bremer, Mrs. K.  
Brett, Mrs. G. A. F.  
Bridger, Mrs. E. E.  
Bridger, R. E.  
Bridgman, H. M.  
Briggs, Mrs. A. C. R.  
Bright, Mrs. H. H.  
\*Brimble, L. A.  
\*BRINK, Dr. V.  
Brinkman, Mrs. L.  
Brinton, M.  
Britten, Miss G. V.  
\*Britten, Miss L. L.  
Brock, Mrs. J. F.  
Brock, Miss M. E.  
Broderip, E. F.  
Bromley, Mrs. R.  
Brooke, Brig.-Gen. C. R. Ingham  
Broome, Dr. E. M.  
Brouwer, Mrs. H. B.  
Brown, Prof. A.  
Brown, A. L. C.  
Brown, J. R.  
Brown, Mrs. M.  
Brown, Mrs. M. G.  
\*Brown, R. C.  
Brownlee, Lt.-Col. J. I.  
Brugman, R.  
Bryce, R. l'E.  
Brydone, R. R.
- Buchanan, Mrs. D. M.  
Buchanan, G. O.  
\*Buckton, Mrs. F.  
BUDDÉ, J. K.  
Buhr, H.  
Buisman, H. G.  
Buissine, Mrs. M.  
Buissine, T.  
Bull, Miss H. O.  
†Bullen, A. H.  
BULLEY, A. K.  
Bullock, Mrs. E. A.  
Burkitt, Mrs. M.  
Burnett-Millar, R.  
Burton, Mrs. H. M.  
Buss, W. G.  
†\*Butcher, H. J.  
Butler, G. J.  
Byron, Capt. L.
- C.**  
Calderwood, Mrs. J.  
Calvino, Comm. Prof. Mario  
Cambridge Hort. Society  
Campbell, Mrs. A. A.  
†Campbell, Mrs. F. M.  
Campbell, Miss K.  
Campbell, Prof. W.  
Canning, E. J.  
CAPE HORTICULTURAL SOCIETY.  
Cape Natural History Club.  
Cape Town Training College.  
\*Caprara, Major R. S.  
†Carinus, Mv. B.  
\*Carruthers Smith, Mrs. G.  
Carstairs, Miss R. M.  
Carter & Co., Geo.  
†Cartwright, Mrs. J. D.  
CASE, MISS M. R.  
Castle, F.  
Cave, Miss E.  
Centlivres, Mrs. F. v. d. S.  
†CERES, MUNICIPALITY OF Chalmers, G. T.  
Chamberlain, Dr. C. J.  
†CHAMBERLAIN, MISS M.  
Chaplin, P. H.

# THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA.

Chappell, Sir Ernest  
 Chase, N. C.  
 Cheetham, Miss C. A.  
 Christian, H. B.  
 †Chubb, Dr. E.  
 Churchill, Mrs. F. E.  
 Cillie, Dr. G.  
 City Tramways Co., Ltd.  
 Clare, Mrs. H. W.  
 Clark, H. J.  
 Clark, W. E.  
 Clarke, Mrs. C. J.  
 Clarke, D. C. I. Mr. and Mrs.  
 \*Clarke, Col. S. R.  
 Clarkson, Miss G. E.  
 Clayton, Mrs. F. R.  
 Cleghorn, Mrs. B. H.  
 Cloete, Miss C.  
 Cloete, Miss E.  
 Cloete, Miss M.  
 Cloete, Mrs. P. A. M.  
 Cloete, Mrs. R.  
 CLOSE, THE HON. R. W.  
 †CLOUGH, M.  
 Clovelly Country Club.  
 Coaton, Mrs. E.  
 Cochran, C.  
 Cocker, H. R.  
 \*Coetzee, N. A.  
 Coldrey, R. G.  
 Cole, Dr. A. H.  
 Collard, Mrs. B. A.  
 Collegiate School for Girls, Port Elizabeth.  
 †COLTON, Mrs. W.  
 \*Combrink, W. G.  
 COMPTON, A. G. W.  
 †\*Compton, Prof. R. H.  
 Congdon, A. E.  
 Connolly, Mrs. M.  
 Conradie, B. J.  
 Conriani, P.  
 CONSTANT, B.  
 Cook, Miss A. D.  
 \*Coombs, Mrs. A. C. M.  
 \*Coombs, Mrs. J. W.  
 Cooper, Mrs. D. M.  
 Copeland, F. A.  
 Corder, C. S.  
 Cottell, E. C.  
 Coudrey, Mrs.  
 \*Couper, Mrs. E. H.  
 \*Coven, M.  
 †Cowin, Capt. O. A.  
 Craig, Mrs. F.  
 †Craigie, A. L.  
 Crampton, Rev. W. M.  
 Cranna, Mrs. R.  
 Creasey, L. B.  
 Cripps, Mrs. G.  
 Cripps, Mrs. L.  
 Crosby, J. H.  
 Cubitt, G. B.  
 Cuenod, Mrs. M.  
 Cumming, Miss J. C. D.  
 †Cunningham, C. M.  
 †Currey, Hon. H. L.  
 Currey, Miss M. H.

Currey, W. A.  
 Currin, Mrs. M.  
 Cuthbert, Mrs. W.  
 \*Cutler, W. J.  
 D.  
 Dale, Miss E.  
 Dallas, Mrs. I.  
 †Dallas, Mrs. L. F.  
 †DALRYMPLE, SIR W.  
 Danel, Dr. P. M.  
 Dart, Professor R. A.  
 Darter, E. L.  
 Darter, Mrs. M. J.  
 Davies, C.  
 Davies, Mrs. E. G.  
 Davies, Mrs. H. P.  
 Davies, Mrs. M. E.  
 Davis, Mrs. G.  
 Davis, G. A.  
 \*DAVIS, P.  
 †DAVIS, Mr. Justice R. P. B.  
 \*Deaf, Principal, School for, Worcester.  
 De Beer, Mrs. A. A.  
 De Beer, Mrs. N. L.  
 De Jager, Miss I. G.  
 De Kantzow, Miss P.  
 †De Kock, Mrs. J. A.  
 De Kock, K.  
 Delbridge, Miss  
 De Mole & Kisch.  
 †Denniston, Mrs. A. W.  
 †\*Denny, G. A.  
 †\*Denny, Mrs. W.  
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- (a) To encourage the inhabitants of South Africa to take an active part in the progress and development of the National Botanic Gardens at Kirstenbosch, and the Karoo Garden at Whitehill, and to induce them to appreciate their responsibilities therein.
- (b) To augment the Government grants towards developing, improving, and maintaining fully equipped botanical gardens, laboratories, experimental gardens, etc., at Kirstenbosch and Whitehill.
- (c) To organise shows at which may be displayed the results of botanical experiments or cultural skill in improving the different varieties of South African flora.
- (d) To enlighten and instruct the members on botanical subjects by means of rambles, meetings, lectures and conferences, and by the distribution of literature.
- (e) To promote the preservation of the Native Flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

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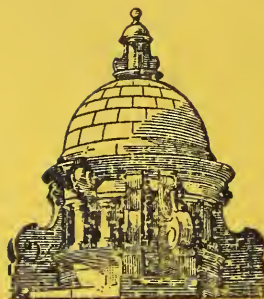






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THE JOURNAL OF THE

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BOTANICAL  
SOCIETY

OF SOUTH AFRICA

Edited by R. H. COMPTON  
M.A., F.R.S.S.Af., Director of the  
NATIONAL BOTANIC GARDENS

Part XXIX.

1943

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KIRSTENBOSCH,  
NEWLANDS, C.P.  
SOUTH AFRICA.

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Published under the authority of the Council of the Botanical Society



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(Photo: S. A. Railways Publicity Department).

PLATE I: On the Lawn at Kirstenbosch.

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# The Journal of the Botanical Society of South Africa.

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EDITED BY R. H. COMPTON.

PART XXIX

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# News and Notes.

MEMBERSHIP of the Botanical Society has been well maintained, and the National Botanic Gardens expect to receive £1,030 during 1944 as the Society's contribution, as compared with £1,029 last year. Subscriptions through the Society to the Karoo Garden, Whitehill, have increased considerably.

\* \* \* \* \*

Mr. Duncan Baxter writes as follows:—

"The passing of Frank Cartwright, after a long period of failing health, has made many people very sad. In him they have lost a friend who was always kindly, sympathetic and willing to help. No one could have been more approachable or more anxious to place knowledge and advice at the service of other people. His knowledge of flowers and gardening was extensive, and many were those who consulted him about their gardening difficulties and always found him interested and helpful. Not only in horticulture was he knowledgeable. The same might be said of his interest in Cape houses and architecture and in old furniture and china, about which he knew much.

"Those of us who worked with him in the Botanical Society, and on the Board of Trustees of Kirstenbosch, had every reason to appreciate his value. From its inception in 1913 until two years ago, when ill health forced him to resign, he was Hon. Secretary and Treasurer of the Society, for whose success he was largely responsible. In 1932 he succeeded Sir Ernest Kilpin as one of the Trustees of Kirstenbosch, a fitting tribute to the work he had put in for the Gardens. He and I more than once acted as Hon. Directors during the absence overseas of Professor Compton, and it was he who did the botanical side of the work. Our association in all these thirty years was indeed a happy one, and I feel like a soldier who has lost his 'half-section'.

"Lovers of Kirstenbosch may like to know that his ashes were scattered on the hillside in the Gardens, just below the grave of his friend, the founder of Kirstenbosch, Professor Harold Pearson."

\* \* \* \* \*

The National Botanic Gardens have received a bequest of £100 from the estate of the late Mrs. Agnes Jane Grant, of Bosky Dell, Simonstown, an

Ordinary Member of the Botanical Society, who died on March 15th, 1944.

\* \* \* \* \*

"Kirstenbosch Sunday," 1943, provided a sum of £129 12s. for the South African Red Cross Society, and in addition £20 was contributed in lieu of the service of refreshments at the Botanical Society's annual gathering.

\* \* \* \* \*

Mr. A. J. M. Middlemost, Assistant Curator of Kirstenbosch, has recently been released from military service and has resumed his post in the Gardens. He had been absent since the middle of 1940, during which time he took part in the East African and Middle East campaigns.

\* \* \* \* \*

The Kirstenbosch Herbarium continues to make rapid progress, and is growing at the rate of about 5,000 sheets (10 cabinets) per annum; the collection will soon be too large for comfortable accommodation in the existing building. It is becoming a valuable establishment for records, reference and research, and an important and intrinsic part of the National Botanic Gardens.

Members of the Botanical Society and others who may wish to have plants identified may send specimens O.H.M.S. post free addressed to the Director, National Botanic Gardens, Kirstenbosch, Newlands, C.P. The Herbarium will gladly undertake the work free of charge, provided that the specimens are adequate, i.e., as complete as possible and not mere scraps, and that particulars are given as to the locality from which they came.

\* \* \* \* \*

Questions as to the methods of sowing and growing native plants are very frequently received at Kirstenbosch, and Proteas are the subject of a large proportion of the enquiries. A good deal has been learnt by experience in recent years, and Mr. F. W. Thorns, Curator of Kirstenbosch, now publishes an article which will be valuable to would-be growers.

A considerable number of articles giving advice on the cultivation of our flora have been published in past issues of this Journal, but these are not readily



PLATE II: Frank E. Cartwright.





PLATE III. Flower Market, Cape Town.  
(Photo: S. A. Railways Publicity Department).



## THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA.

accessible to recent Members. Mr. Mathews' "Cultivation of South African Plants" (of which a few copies are still obtainable from the Hon. Secretary, price to Members 1s. 6d. post free), is a valuable compendium of information which can be read along with the Gardens' Seed Lists. Mr. Thorns' article—which we hope will be the first of a series—will, however, give the more detailed and up-to-date information which gardeners want.

\* \* \* \* \*

Mr. M. R. Henderson, formerly Curator of the Straits Settlements Herbarium at Singapore, who has been working in the Herbarium at Kirstenbosch for nearly two years, has made a special study of the magnificent collection of Cycads growing in the Gardens. His work is not yet complete, but he gives a brief summary of some of the interesting results obtained in an article published below. It is clear that existing accounts of the South African Cycads are inadequate, and that a considerable amount of research in the field, Gardens and Herbarium is required before a satisfactory monograph can be published on this most interesting group.

\* \* \* \* \*

Dr. E. P. Phillips, who has been Chief of the Division of Botany and Plant Pathology, Department of Agriculture, has now retired from that office (February, 1944), and has been succeeded by Dr. Robert Allen Dyer, formerly Principal Government Botanist and in charge of the National Herbarium, Pretoria. Dr. Dyer has made several noteworthy contributions to the knowledge of the South African flora, among which may specially be mentioned his collaboration with the American authors, Alain White and Boyd Sloane, in producing the fine monograph on the Succulent Euphorbieae (reviewed in *Journal of South African Botany*, 1942, p. 244). His account of *Cyrtanthus* (*Herbertia*, vol. vi, 1939) is the best existing study of this striking South African genus. While congratulating Dr. Dyer on his appointment, it may be feared that official duties will seriously curtail his botanical work.

Dr. Phillips, who has gone into partial retirement, is working at a revision of his "Genera of South African Flowering Plants," originally published in 1926, and of great usefulness as a book of reference.

\* \* \* \* \*

The following is a quotation from a letter written in Latin by the great Carl Linnaeus to Governor Ryk

Tulbagh (Translation in the *Correspondence*, vol. I, p. 570):—

"May you be fully aware of your fortunate lot, not only in being permitted by the Supreme Disposer of events to inhabit, but also to enjoy the sovereign control of, that paradise upon earth, the Cape of Good Hope, which the Beneficent Creator has enriched with His choicest wonders. Certainly, if I were at liberty to change my fortune for that of Alexander the Great, or of Solomon, Croesus or Tulbagh, I should without hesitation prefer the latter."

Linnaeus immortalised the Governor's name in the Liliaceous genus *Tulbaghia*.

Whether Tulbagh fully appreciated his good fortune we cannot say. Nor would we like to speculate on what Linnaeus would think if he could visit the Cape to-day and see so many of the Creator's "choicest wonders" blasted by fire, impoverished by erosion, exploited for fleeting human advantage, blotted out by alien weeds.

\* \* \* \* \*

The summer of 1943-44 has been marked by the prevalence and severity of mountain fires in the Western Cape Province. Some of these may be attributed to carelessness, but a very large proportion were undoubtedly caused deliberately. In the Bishops-court estate, adjoining Kirstenbosch, about 60 separate fires took place, and in some cases "set-ups" designed to cause a fire after a delay (during which the culprit disappears) were found. The Gardens staff and labour assisted in extinguishing many of these outbreaks, which were alarming on account of their proximity.

In two cases, as recorded in the newspapers, the incendiary was caught and brought before magistrates. In one of these, in the Simonstown area, a salutary sentence of three months' imprisonment was inflicted; the criminal was, however, released after a fortnight in the general amnesty. Further highly alarming conflagrations in the neighbourhood of the naval installations took place soon after. In the other case, in the Hermanus district, where devastating fires had occurred, a suspended sentence was given. In view of the great difficulty of catching culprits, it may well be doubted whether such a sentence will act as a deterrent in the very slightest degree.

\* \* \* \* \*

In Kirstenbosch two fires took place early in the summer, but these were limited and extinguished by active fire-fighting in which the Municipal and Forest

Departments gave valuable assistance to Gardens personnel. On 6th March, however, a fire started on the Lower Plateau of Table Mountain and, resisting all attempts to extinguish it on the precipitous slopes, destroyed most of the scrub vegetation of the Upper Kirstenbosch Nature Reserve as well as that on the buttresses above Newlands. Fortunately, it was possible to check it on Nursery Buttress, from which the cultivated parts of the Gardens are very vulnerable; indigenous forest acted as a barrier in Skeleton Gorge and at the foot of the other buttresses.

Owing to the relative infrequency of fires in the Kirstenbosch area (as compared with, say, the Camps Bay slopes), permanent damage is not likely to be serious; but one effect will be to favour the invasion of pines, a large number of which escaped destruction, and whose seed will now find fresh opportunities for germination on the burnt slopes.

\* \* \* \* \*

The fire which burnt large areas in the French Hoek Mountains last year swept across the only two known sites on which *Serruria florida* grew. A recent inspection of the site showed that all the plants had been destroyed; but it is too early to say whether germinations may take place from seed possibly lying dormant in the soil. This most charming of the Protea family is securely in cultivation at Kirstenbosch, but it would be deplorable if it finally became extinct in the wild state.

\* \* \* \* \*

In war time the part played by science is recognised as of the most vital importance; but in the things of peace the State acts on the most meagre scientific foundation or on none at all. How many of our Cabinet Ministers, for instance, have any scientific knowledge? What part does science play in the deliberations of Parliament? Can we wonder if the most mistaken and short-sighted policies are adopted on the grounds of whim or interest rather than of research and fact? The official slaughter of game now proceeding in Zululand is a flagrant example, and the Royal Society of South Africa, speaking for science, has strongly protested against it; so have many other societies and individuals. The remedy for present troubles is in research, not the rifle; science, not political pressure.

\* \* \* \* \*

The Director of the National Zoological Gardens, Pretoria, in a recent address said (S.A. Journal of Science, 1943, p. 250): "The National Parks Board

of Trustees has now been in existence for more than sixteen years, but in spite of the Act's very clear statement of objects, no zoologist or botanist has ever served on the Board. This is an amazing state of affairs that requires prompt rectification. The omission is so glaring as to make further comment superfluous."

\* \* \* \* \*

In matters connected with veld burning, soil erosion, etc., it is astonishing how little thorough scientific research has been done.

The Royal Society of South Africa has recently made an enquiry on the subject of the conservation of native vegetation. It has received a considerable number of memoranda from persons specially familiar with the problem, and a committee has been entrusted with co-ordinating the views expressed. This is proving an almost impossible task, the fundamental difficulty being the absence of real knowledge based on scientific investigation. Policies have to be framed to save the country from the effects of the destruction of its vegetation; everybody has views on the subject, more or less well based; but nobody can point to more than very limited ascertained facts. If the Royal Society can stimulate a proper scheme of investigation of the effects of mountain fires—surely a piece of research which should have ample Government support—it will be possible to act with much more certainty than is the case to-day.

The Agricultural Department's recent important pamphlet, "The Reconstruction of Agriculture," which marks a great step in the official recognition of the fact that farmers need controlling in their own and the country's interest, says on the subject of veld burning (paragraph 108): "Legislation is called for to prevent the haphazard burning of veld at any time of the year, which is characteristic of many farming areas, and notably to control very strictly the burning of mountain catchment areas, which not only leads to the drying up of local water sources, but is also the main cause of the disastrous floods that are experienced with increasing frequency along the lower reaches of the rivers fed from these mountain catchments." Of that there is no possible doubt whatever.

\* \* \* \* \*

Septicism is sometimes expressed as to the effectiveness of the various measures taken for the protection of wild flowers. Nobody can call the present position entirely satisfactory, and the sale and export of wild flowers from the Cape Province still

takes place to some extent, the offenders suffering light penalties or more often escaping altogether. But a comparison between the flower market in Trafalgar Place, Cape Town, to-day and as it was 15 or 20 years ago shows an enormous change. Then it was filled from end to end almost entirely with wild flowers (varied with an occasional bath of garden flowers of very doubtfully honest origin); now garden flowers are abundant, and wild flowers are relatively few. (See Plate III.) The ordinances have, it would seem, had the double effect of restricting the spoliation of the veld and of promoting the legitimate cultivation of garden plants. When wild flowers could be poached and sold, honest cultivation could not compete. Another effect of the attack on an illegitimate trade may perhaps be seen in the recent great development of flower shops in Cape Town; formerly these were almost peculiar to Johannesburg, but now that the competition of the cheap plunder of the Cape veld has been reduced, there is a chance for garden-grown flowers to come into their own for decoration and adornment.

\* \* \* \* \*

But, the sceptic may say, wild flowers are no longer being sold because there are none left to sell. Unfortunately, there is a very serious element of truth in this. The destruction of the Cape flora over wide areas by agriculture and fire as well as by commercial plucking is a most lamentable result of careless and ruthless exploitation of the natural resources and beauties of this region. Only in so far as we protect our flora have we any right to be proud of it.

To an enlightened Forest Department—the country's largest landowners—we look for real and positive means of protection of the native vegetation. The new Forest Act gives the Department every necessary power for this purpose, and material as well as scientific and aesthetic interests demand the conservation of the natural vegetational cover of our catchment areas—that is, of all the mountains of the coastal belt.

\* \* \* \* \*

There is much need for improved facilities for the training of European gardeners in South Africa, and the Association of Superintendents of Public Parks and Gardens have made a proposal that there should be established a "National Institute of Gardening" to provide this training. While admitting the desirability of local training, it may be questioned whether the Association's scheme is not too grandiose. It involves a "centre for the concentration of present experimental and research activities in horticulture, botany, viticulture, plant pathology, soil chemistry, veld conservation and cognate services, etc., etc." The Division of Botany seized the opportunity to resuscitate its old plea for "a National Botanic Garden in Pretoria," stating (quite inaccurately) that "the training of gardeners overseas is mostly undertaken at Government-controlled botanic gardens, which are run in conjunction with a national herbarium." Major Long, who has his own different scheme, considered that "not too much stress should be laid on the word 'botanical'." The Association seems to have approved both the Division's scheme and Major Long's—a generous gesture which makes it difficult to know what it really wants. The main impression is, however, that an enormous mountain is to be created for the purpose of producing a very small mouse.

\* \* \* \* \*

Gardeners, of course, are badly needed. In South Africa, however, it is above all necessary to realise that a gardener is one who can and will do gardening work. The Association is apparently aiming at producing superintendents, overseers, research workers, and so on—anything except gardeners. And it looks as if it will produce far too many of them. Let us hope that its altogether over-elaborate schemes will be thoroughly well pruned and shaped, so that finally they may produce gardeners who can use a spade and can make plants grow.



# Notes on some Species of *Encephalartos* cultivated at Kirstenbosch.

By M. R. HENDERSON.

IN this Journal in 1916 there was published an account of the Cycads in Kirstenbosch, with a list of the species then in cultivation. It is interesting to look back over the intervening years and to see what changes there have been in the interval, although twenty-eight years is nothing in the life of an *Encephalartos*.

The 1916 list gives no fewer than thirteen or fourteen species of *Encephalartos*, of which nine were considered to belong to known species. To-day we have fourteen named species from South Africa and representatives of several others.

In 1933 Hutchinson and Rattray gave a long overdue account of the South African Cycadaceae in a Supplement to Volume V., Section 2, of the *Flora Capensis*. This account clears up a number of doubtful points and provides a sound basis for future investigations, but by its omissions and by its reduction to synonymy of certain distinct species it indicates how much more work is necessary on the genus *Encephalartos*, both in the field and in the Herbarium and Library. Hardly any other group of plants, it would seem, has been more neglected by field botanists than this ancient and most interesting one. True, they are difficult to collect satisfactorily and most herbaria possess only the poorest of scraps, with very few pictures or photographs, so that it is no surprise that European botanists, working without seeing living plants, or seeing at the most a few cultivated specimens, have found it difficult to give adequate accounts of the genus.

Kirstenbosch possesses what is certainly the finest living collection of South African species of *Encephalartos* in the world. Every species recorded for South Africa is represented, save only for one, or perhaps two, from the Transvaal, and there are in addition plants of several species which cannot be fitted to any of the existing known ones. Of most species there are several plants of both sexes, so that the variability of the species can be studied at leisure.

In comparing the photographs published in 1916 with the scene in the Cycad Garden to-day, the general impression is that the whole area has grown up almost out of recognition. But it is not the *Encephalartos* that have grown — much. For instance, the large *Encephalartos latifrons* shown in the frontispiece to Part II. of this Journal is said in the text to stand nine feet above the ground. The present height to the apex of the trunk is about eight feet. Perhaps the trunk was measured before it was planted and a foot or so buried to give it stability. In any case it looks almost exactly the same to-day as it did twenty-eight years ago. Chamberlain in his book "The Living Cycads" mentions plants of *E. latifrons* and *E. Altensteinii* which he saw in a garden at Grahamstown. The owner said that the *latifrons* had not grown at all in forty-six years, while the *Altensteinii* may have grown a foot.

Certainly they are slow growing, lethargic plants, and as might be expected of such, tenacious of life. A bare trunk, its leaves and roots lopped off, scarred and blackened, maybe, by bush fires, dragged by a team of oxen from the spot where it has stood for a hundred years, trundled in railway trucks and shipped overseas, will in a year or so be a flourishing plant. There is some evidence to show that old plants retain their slowness of growth no matter how rich the soil may be into which they are transplanted, but that young, vigorous plants respond to good conditions and grow faster and become much larger than they normally would in their native habitats.

One astonishing thing about them is the rapidity with which they unfold and expand their crowns of new leaves, and produce enormous bulky cones, some of which are said to weigh as much as ninety pounds. Both the male and female cones develop rapidly. The male cones mature quickly after reaching their greatest growth and the final stage is reached when the axis elongates, the scales move apart and the pollen is shed. The female cones, after attaining their full bulk in a surprisingly short time, ripen

slowly and may still be intact six months after they are apparently full grown. Then they quickly fall to pieces and in a week or so have completely disintegrated. One of the smaller species — *E. lanatus* — had a female cone which was just showing signs of erupting about the middle of October. A month later it was about six inches tall and about the middle of December it was fully grown and about thirteen and a half inches tall. It is still in the same condition (at the beginning of March) and shows no inclination to fall apart. A female cone on *E. caffer* was showing as a bulge on the stem apex on December 29th. It was six inches tall on January 11th, and by the middle of February it was fully grown but a long way from being ripe. A large cone of *E. Lehmannii* was apparently full grown in May, but it did not fall to pieces until the end of the following December.

The Cycads are widely scattered over the tropics and temperate regions of the world. In the western hemisphere most of them are found north of the Equator, in the southern parts of North America, with one genus in South America. In the Old World, most are south of the Equator, in Tropical and South Africa and Australia, with one genus reaching out northwards into East Asia.

The genus *Encephalartos* is concentrated mainly in South Africa, coming as far west as about Assegai Bosch in the Humansdorp Division, and keeping mostly to the south-eastern coastal regions, round to Natal and Zululand, then penetrating further inland and reaching the Western Transvaal. The genus continues north into Tropical Africa, as far as the Gold Coast. In spite of this wide range, all the species, even some from Tropical Africa, flourish at Kirstenbosch and seem perfectly at home there. To a botanist studying such a group of plants, this living collection is indispensable. He can go among the plants day by day, and after a year or two he feels that he is beginning to know something about them — knowledge of a kind that cannot be extracted from dried specimens. But along with the study of cultivated plants should go field studies, and here again visits should be made at intervals over a considerable period of time, not an easy matter in these days of restricted travel and in a country where long distances must be covered to see all the species. As I have remarked, much remains to be done in this direction and it is to be hoped that when travel again becomes easy, someone with the necessary enthusiasm will be able to spend a year or two clearing up

problems of distribution and of the limits of the species. Some of these problems are indicated in the notes which follow.

*Encephalartos caffer* Lehm. The plant that now bears this name used to be called *E. brachyphyllus* and it is so named in the 1916 article. There was until recently some doubt as to which plant should be called *caffer* and this name was very often wrongly given to *E. longifolius*. The name *E. brachyphyllus* is no longer in use. *E. caffer* is perhaps the most distinctive of all South African *Encephalartos*, with its underground stem, short erect leaves with entire crowded leaflets which arise from the rachis in various planes. The leaflets are hairy when young and the young petioles densely woolly. The glabrous green cones are also different from those of other species, the male with flat topped, not beaked scales and the female with very broad and deep scales flattened on top. It is recorded by Thunberg in his *Flora Capensis* (edition Schultes) from Lange Kloof and Krûm River, but these records must be attributed to *E. longifolius*, and its most westerly extension seems to be van Staadens in the Uitenhage Division. There are records of it as far inland as Steytlerville, but normally it seems to remain near the coast right round to Zululand. Herbarium records are scanty. More collecting is needed, especially in the northern part of its area.

*Encephalartos Lehmannii* Lehm. If all the plants called *Lehmannii* really belong to one species, then it is a very variable one, and it seems probable that when it is better known it may have to be split up.

At Kirstenbosch the plants fall first into two groups—one with almost entire leaflets and one with the leaflets more or less deeply lobed. The entire leaflet group can be split into two on the characters of the female cones, and the same can be done with the lobed leaflet group. There are two further forms, one in the entire leaflet group and one in the lobed leaflet group, which look different in foliage from the other members of their groups, but of which no female cones have been seen. The female cone described by Hutchinson and Rattray is of one of the entire leaflet forms and it seems probable that they did not see cones of other forms.

Unfortunately, herbarium records do not help us much in determining the geographical distribution of the various forms.

The range of the whole complex is so far known to be from about Jansenville in the west to Tsomo and



Komgha, in the east and from about Cradock and Queenstown in the north to Grahamstown in the south (Bews in his Flora of Natal and Zululand records it from the Natal coast belt). Field studies would no doubt bring to light further extensions of the range and are badly needed to determine where the various forms grow, whether they are reasonably constant, especially in the characters of the female cones, and what the male plants of each form are like. Until this can be undertaken there is little use trying to split *Lehmannii* as it is now known into species or even varieties.

For the benefit of anyone who may be able to study the plants in their native habitats, I list the forms mentioned above, but it must be emphasised that this grouping is purely tentative and may not hold when large numbers of plants are examined.

Form "A": All or nearly all leaflets entire, or at least no leaflets deeply lobed. Female cone with dark coloured, smooth scales, their lateral angles acute, almost winged.

Form "B1": Many leaflets, nearly always some on each leaf, with distinct lobes. Female cone with very rugose greenish scales, the rugosities pointed, apex of scale protruding.

Form "B2": Foliage much as in "B1". Female cone scales yellowish, hardly rugose, at most more or less corrugate, apex of scale protruding little beyond surface of cone.

Form "C": Leaflets lobed, but longer and more distant than in form "B", the whole leaf laxer and usually more glaucous. No female cones seen.

Form "D": Foliage much as in form "A", but leaflets with less tendency to be spreading. Female cone scales dull green, rugose with pointed rugosities, lateral angles rounded, not produced.

Form "F": Foliage resembling that of form "D", but with a tendency to have more very short spine tipped lobes towards apex of leaf; whole leaf more upright with the leaflets pointing upwards. No female cones seen.

*Encephalartos cycadifolius* Lehm. This name does not appear in the 1916 list, but the plant used to be called *E. Friderici-Guilielmi*, a name no longer in use. This handsome species is well represented in Kirstenbosch, and so far as our specimens go it is very distinct and not variable. Chamberlain remarks, however, that it is variable. He saw it in the Cathcart

region, calling it *Friderici-Guilielmi*, and mentions "*cycadifolius*" as occurring rarely near East London. Whatever this East London plant may have been, it was certainly something quite different from the Cathcart one, and I have not been able to find out what it was. True *cycadifolius* has not been recorded from East London.

Apparently the name *cycadifolius* was applied in some quarters to a Transvaal plant which was described in 1926 by Stapf and Burtt-Davy as *E. laevifolius*. This caused a certain amount of confusion and a reluctance to drop the name *Friderici-Guilielmi*, for this and *laevifolius* are quite different, the latter having much less stiff leaves, a more slender trunk without the very flat, woolly top of the former, and an almost glabrous and not densely woolly female cone.

*Encephalartos laevifolius* Stapf & Burtt-Davy. Unfortunately Hutchinson and Rattray have reduced this species to another Transvaal one—*E. lanatus*, described at the same time as *laevifolius*. Kirstenbosch is well supplied with plants of both species and even without cones it is possible to see very quickly that they are distinct. Cones, both male and female, leave no doubt. Those of *lanatus* are densely brownish woolly in both sexes and both have remarkably flat topped scales. The female cone of *laevifolius* has nearly glabrous scales different in shape from those of *lanatus*, while the male cone has beaked, not flat topped, scales.

*Encephalartos Altensteinii* Lehm. This is probably the best known of all the South African species. Its range is from about the Kowie River, Bathurst, to Natal. Flora Capensis records it from the Eastern Transvaal, but this is probably based on *E. transvenosus* Stapf & Burtt-Davy, which Hutchinson and Rattray reduced to *Altensteinii*. *E. transvenosus* is known as the "Modjadjes Palm" and there are a number of specimens at Kirstenbosch ranging from very young plants to mature ones which, although they have coned, have not yet developed tall stems. There is no doubt about the similarity to *Altensteinii* in the foliage and even in the female cones, but there are definite differences which convince me that *transvenosus* is a good species. One of the most striking, though not the most important, is the lack of colour in the disintegrating female cone of *transvenosus*. In *Altensteinii* the whole of the hidden part of the scale is brilliant scarlet or orange red and a partly broken up cone attracts the eye from afar. In



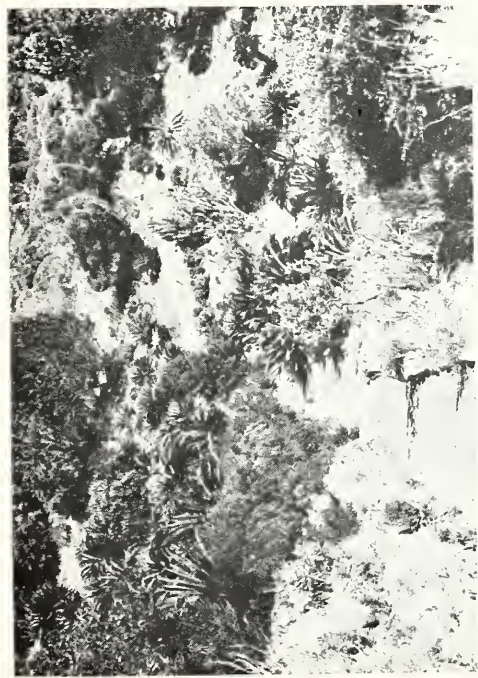


PLATE IV: Cycads at Kirstenbosch.

1. The Cycad Garden (compare with photograph in Journal, 1916).
2. *Encephalartos laevifolius*

3. *Encephalartos caffer*, crown.
4. *E. caffer*, underground stem and roots.

(Photo: M. R. Henderson.)





(Photo: M. R. Henderson and R. H. Compton).

PLATE V: Proteaceae.

1. *Leucospermum attenuatum*.
2. *Protea grandiceps*.

*transvenosus* the colour is pale yellow, sometimes faintly tinged with pink. The fully adult leaves of *transvenosus* usually have the upper leaflets more spiny than those of *Altensteinii*, and they are recurved and not held in a V as in the latter species.

Besides the species listed in 1916, the following have since been added to the collection: *E. kosiensis* from Zululand; *E. longifolius* from the Eastern Province (but perhaps this is what was called *caffer* in 1916); *E. transvenosus* from the Transvaal; *E. Woodii* from Zululand; *E. lanatus* from the Transvaal (perhaps the one referred to in 1916 as a probable new species from the Transvaal); *E. laevifolius* from the Transvaal. There are plants also of three Tropical African species—*E. gratus*, *E. Hildebrandtii* and *E. Barteri*. The unnamed species from Delagoa Bay has not definitely been traced. The "handsome" species from Bathurst may be one that is considered very close to *latifrons*. The unnamed species from Cookhouse is probably a form of *Lehmannii*. Kirstenbosch possesses also a single plant of a species

related to *Lehmannii* which comes from the Waterberg, Transvaal, and is to be described as new by Miss I. C. Verdoorn; and a group of large plants with long leaves and lobed leaflets which do not fit any species so far described, but of which the origin is now unknown.

Not only is it obvious that more field work is needed on the genus *Encephalartos*, but that the extension of the living collections in such institutions as the National Botanic Gardens, Kirstenbosch, is urgent. There is a grave danger that many of the species of *Encephalartos*, especially those with restricted areas of distribution, may become extinct unless rigorously protected against the encroachments of civilisation. One of the best forms of protection is to have them growing in botanic gardens. Kirstenbosch is in the fortunate position, rare to-day, of having room in which to expand its collections and in enjoying a climate which seems to suit plants from varying climatic areas. The collection of *Encephalartos* at Kirstenbosch is magnificent, but it is not yet complete.

## South African Proteaceae in Cultivation.

By F. W. THORNS.

THE visitor to Kirstenbosch in Spring or early Summer cannot fail to be impressed by the magnificent display made by the various genera of Proteaceae, including *Protea*, *Leucospermum*, *Serruria*, *Leucadendron*, *Mimetes*, *Aulax* and *Paranomus*. The climatic and soil conditions are particularly suited to these plants, and the physical conformation of the Gardens makes it possible to grow the respective types under conditions best suited to display them to advantage. Judging from the demand for seeds and enquiries received, it is obvious that many visitors are keen to grow these plants in other localities, and the main object of these notes—drawn as they are from experience accumulated here—is to help them to accomplish this admittedly difficult task.

Unfortunately the family as a whole is difficult to cultivate, which probably accounts for the fact that they are by no means well known in gardening circles. We ourselves have evolved methods of propagation and cultivation after considerable trial and error, and we receive reports of success from corre-

spondents within the Union, including the Rand, where conditions are severe. Considerable success has been achieved with these plants in parts of Australia and California, where conditions approximate to this locality, and many years ago *Proteas* and allied plants were flowered under glass in Europe. Therefore it should be possible to grow them in most areas of the Union, if only the proper care and conditions can be given.

In dealing with Proteaceae as garden plants we must give *Leucospermums* pride of place. *L. nutans* and *L. Bolusii* form large spreading shrubs, up to eight feet tall, bearing a profusion of their pincushion flowers from September till Christmas. The colours are variable, in shades of yellow, bronze, orange and reddish tints. *L. reflexum* is a beautiful ten foot bush, with reddish flowers and grey leaves, and *L. tottum* a smaller bush with soft buff coloured flowers. Eighteen named species are recorded at Kirstenbosch, including small flowered types such as *L. puberum* and *L. album* (the latter scented) and the procumbent



*L. prostratum* and *L. stenanthum*. All of these are attractive plants, being neat in habit without seasonal untidiness, and requiring little or no attention when established. As cut flowers they are ideal, lasting for upwards of a week in water, and packing and carrying well.

Proteas as a group do not fit quite so well into the generally accepted idea of a good garden shrub. With a few exceptions they do not produce quantities of blooms at one time, and many are inclined to become leggy and misshapen with age. The old blooms dry up and persist, and this habit, together with a certain amount of drying and discoloration of foliage during the summer, makes the plants more suitable for wild garden surroundings than for the neat, formal garden. Among the forty odd named species cultivated here there are several, such as *Protea barbigera*, *P. cynaroides*, *P. grandiceps*, *P. neriifolia* and others, which bear large and strikingly beautiful flowers on large bushes, and a further list could be made of species which, although rarely spectacular in the garden, will provide cut flowers of varying form and colour that can be arranged in bowls to create unusually decorative effects. In addition there are the numerous dwarf and stemless species, such as *P. acaulis*, *P. amplexicaulis*, *P. lorea*, *P. scabra*, etc., which by reason of their peculiar form and habit are of interest for rock gardens and similar positions.

Serrurias, particularly *S. florida*, *S. aemula* and *S. barbigera*, are very attractive in the garden, and their daintier flowers form an effective foil for the heavier Proteas. *S. gracilis* and *S. pinnata* are prostrate forms suitable for rock planting.

Only two species of Paranomus are grown, *P. reflexus*, a bushy four foot shrub with greenish yellow plume-like inflorescences, and *P. crithmifolius*, a smaller plant with woolly flowers.

Mimetes species do not seem to be entirely amenable to cultivation, but the rather stiff-looking spikes with their coloured bracts borne by our few plants of *M. lyrigera* are much admired.

*Aulax cneorifolia*, *A. pallasia* and *A. pinifolia* are extremely useful in the wild garden, where their distinctive foliage and feathery male inflorescences blend well with other plants. They cannot, however, be recommended for the formal garden.

The genus *Leucadendron* supplies many shrubs eminently suitable for the wild garden, of which the largest, *L. argenteum*, the Silver Tree, is well known.

Other species with bright, showy bracts in Spring, either yellow or metallic tinted, are *L. adscendens*, *L. concolor*, *L. decorum*, *L. discolor*, *L. grandiflorum*, *L. Stokoei* and *L. venosum*, to name a selection from the thirty odd named species in cultivation at Kirstenbosch.

#### PROPAGATION.

Various methods of propagation have been used at different times at Kirstenbosch, but the following is now in use as having produced the best results under our conditions. All of the species are treated in exactly the same manner, and all grown from seeds. Cuttings of some Proteas and Leucospermums have been rooted, and this method was used overseas in the past, but no good results were achieved here and the cutting method can be dismissed as being useless excepting where seeds are unobtainable.

March is the month of sowing, the seeds being sown in the open ground. A bed of light sandy soil is prepared with leaf mould or compost and the seeds placed in shallow drills drawn across the bed. For convenience the drills are spaced six inches apart, and the seeds placed thickly or thinly according to the probable proportion of viable seeds that may be expected. This varies considerably and is known to be very low in some species of Protea, but generally high in Leucadendrons and Serrurias. After sowing the seeds are lightly covered and the beds firmed down. If necessary, water is applied and the soil kept in moist condition from then onwards. No shading or covering is used.

Germination begins in about three weeks, but there is no constancy in the period between sowing and the appearance of cotyledons for the various species. Generally Serrurias are first to appear, followed closely by Leucadendrons, with Proteas coming along at intervals during a period of five to eight weeks from sowing. Leucospermums are slow and germinate at intervals until about September. The proportion of seeds to germinate varies from year to year, apparently the only constant feature being that the more desirable the species, the lower the proportion of germination; *Serruria florida* being an exception in that it is a delightful plant and yet germinates well and quickly. Experimental sowings have been made at other seasons of the year, but up to the present no success has resulted from such trials. The proportion of seedlings falls with later sowings, and after July failure was one hundred per cent. once again with the exception of *Serruria florida* which produced a small number of plants.

This poor viability cannot be explained. In the case of *Protea* seeds it is probably due in part to the fact that many of the seeds are definitely infertile, and there is no simple test that will not destroy the seed. In the case of *Leucospermums* it is more puzzling, as many of the seeds which fail to germinate in the first season will, if left alone, come up in the second, or possibly the third, season, but always about mid-winter. There is no evidence of seeds germinating during the period September—May, no matter what the conditions. Experiments to control germination by chipping, soaking, or treating the seeds with weak acid have all resulted in failure. This phenomenon of delayed germination also applies to some of the round-seeded *Leucadendrons* (as distinct from the flat-seeded species), but has not been observed among *Proteas*.

As soon as the young seedlings have developed two or three true leaves they may be removed from the seed bed, and either planted out into permanent quarters or planted in tins for future transplanting. The former method has been practised extensively at Kirstenbosch in the past, and although successful up to a point has been found undesirable on account of the difficulty in caring for the great number of young seedlings during the following summer. Even during normal Cape summers the young plants will need watering at intervals, and when the season is unusually dry it becomes impossible to give adequate care to all of these scattered plants. Consequently losses may be very heavy. We find that better results are obtained by growing on the seedlings in tins for the first season and planting them out as established plants at the beginning of the rains, say in April, when they are almost one year old.

The tins most favoured are those made by us from galvanised iron with loose bottom and side opening for easy planting. The size is four inches by four and seven inches deep. As a wartime substitute we have been forced to use discarded two pound jam tins, and, although these are suitable for some weak, slow-growing species, they are too small for the stronger growing kinds and a certain amount of starvation is apparent among plants in these tins. Flats have also been used, but are not recommended on account of their shallowness and the difficulty of removing plants without root damage.

The soil used is a light sandy mixture, enriched with a little compost and some bone meal and phosphates if available.

A period of moist, showery weather is chosen for transplanting the seedlings. Some care is needed in handling them, but it has been found that, contrary to earlier beliefs, damage to the taproot is not necessarily fatal; in fact, the lowest proportion of losses in tinning up we have ever noted (about 4 per cent.) was among a large, mixed batch in which every taproot was shortened by cutting when transplanting into tins was done.

The newly-tinned plants are first placed under cover of garden frames to give protection from heavy rains. All possible light and air is allowed, there being no danger from hot sun at this period of the year. Sufficient water is given to keep the soil moist. Growth is fairly rapid, and by the time the August rains are over the tins are brought out into the open, the plants being then about two to four inches tall, according to species. At this stage the growing tip is removed, leaving five or six leaves, with the object of promoting bushy growth and so preventing the legginess which results when seedlings are allowed to grow unchecked.

At Kirstenbosch the plants can be seen growing under varying soil conditions, and it is immediately obvious that, in common with other classes of plants, they prefer the deeper loamy soils, derived mainly from granite with gravelly subsoil. Where they have been planted on the poorer Table Mountain sandstone soils they are usually stunted, are slow growing and more adversely affected by drought. *Leucospermums* in particular will respond in a remarkable manner to good soil conditions. As far as possible we add a spadeful of compost and a small handful of complete fertiliser when preparing the holes for planting, but beyond this no treatment is given, although those plants growing in "cultivated" spots derive benefit from any manures or fertilisers used in their vicinity. At planting time holes should be well prepared by digging at least two feet in diameter and two feet deep. Planting should be done carefully and firmly.

Most of the larger growing, showy types are at their best from about their third until their eighth or tenth years. Some of the older plantings at Kirstenbosch are about twenty years old, but few bushes at this age are worth keeping. Very little can be done to improve the plants by pruning, as the family in general does not break readily from hard wood. *Leucospermums* can be kept in shape by light pruning (this is generally done by cutting of flowers in any case), and the ultimate habit of this genus, as also



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with *Serruria*, can be improved by any necessary pinching back of leading shoots during the first two or three years of growth.

There is one exasperating tendency common to the whole family, and that is to die suddenly at any age or season, often for no apparent reason. Such losses are most prevalent at the end of the dry season, and drought is probably at least a contributory cause. Occasionally one finds evidence of the Silver Tree beetle larvae in old stems, but no serious troubles have been traced to this source. There is strong evidence of a virus disease, particularly among *Leucadendrons* and possibly also affecting *Protea barbiger* on occasion. Luckily none of these troubles are general, as they are unlikely to be controlled by any ordinary measures. Thrip insects have been known to cause damage to young shoots of *Serrurias*, but these are easily controlled by nicotine. These are all comparatively minor troubles, and in general the plants are not seriously ravaged by pests or diseases.

A few notes on seed collecting may be useful here. *Leucospermums*, *Serrurias* and *Paranoms* produce ripe seeds well before the flowers have dried. They are forced out as they develop and may be gathered from the flower heads or from the ground. The number of seeds produced varies from year to year, possibly owing to climatic differences. A few *Proteas*,

including *P. rosacea* and *P. pityphylla*, ripen their seeds soon after flowering and they will be lost if not collected early, but in the majority of *Protea* species the seed heads remain intact on the plants for several years. These are collected and dried, whereupon they open and disclose the seeds. Some species produce quantities of seeds, others few or none. A little practice in sorting over the heads and testing a few "seeds" by cutting, will soon show which are likely to be fertile. *Leucadendron* seeds are borne in cones which when dried will open and release the seeds.

It will be obvious that the methods of propagation used here would need some modification in other climates. It will be noted that the period for sowing here coincides with the first soaking winter rains, with a falling soil temperature, and a considerable amount of cloud. This would naturally mean that close attention to watering and some shading would be necessary in dry, sunny climates. When established the plants require water during the winter. Here they thrive under an average precipitation of about 55 inches, most of which falls in winter. At the same time they are subject to fairly severe summer drought, and whether the species from winter rainfall areas would be adversely affected by soaking summer rains is not definitely known.

## THE BOTANICAL SOCIETY OF SOUTH AFRICA.

### ANNUAL REPORT, 1943.

Your Council have pleasure in submitting hereinunder the Thirtieth Annual Report and Financial Statement of the Society for the year ending the 31st of December, 1943.

It is gratifying to note that, notwithstanding the present abnormal conditions, the interest of Members in the work of the Society has been well maintained. Furthermore, the accession of new Members has on the whole counterbalanced those who have resigned and those whose removal by death your Council deplores. At the end of the year the Membership Roll stood as under, the numbers in brackets representing the corresponding figures for 1942, viz.:—

|                   |    |    |       |         |
|-------------------|----|----|-------|---------|
| Life Members      | .. | .. | 91    | (84)    |
| Family Members    | .. | .. | 103   | (100)   |
| Ordinary Members  | .. | .. | 1,072 | (1,028) |
| Associate Members | .. | .. | 585   | (593)   |

As shewn by the Accounts annexed hereto, the Annual Grant to Kirstenbosch amounted to £1,034 2s. 4d., being £5 4s. 4d. more than the previous year. The amount to the credit of the Life Members' Fund is £1,130, being £175 greater than at the end of 1942. Investments total £2,055 19s. 5d.

**ELECTION OF OFFICE BEARERS.**—At the Annual Meeting held on the 26th March, 1943, the following were elected:—

*President:* Mr. W. Duncan Baxter.

*Vice-Presidents:* Mr. Frank E. Cartwright, Professor R. H. Compton and Mr. M. J. van Breda, M.E.C.

*Members of Council:* Mrs. F. Bolus, Mr. H. G. Botha-Reid, Mrs. H. Burton, Mr. F. A. C. Guthrie, Dr. Bennie Hewat, Miss M. E. Johns, Mr. J. J. Kotzé,



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Mr. J. D. Krige, Mrs. G. W. Lyon, Mr. J. F. Martley, Mr. F. W. Metelerkamp, Dr. H. A. Moffat, Miss K. Murray, Mr. W. Olive, Mr. H. N. Porter, Mr. C. J. Sibbett, Mr. H. C. Starke, Miss E. L. Stephens, Captain Chas. Struben, and Mr. E. W. McL. Thomas.

The death on the 22nd of June last of Mr. Frank Cartwright is deeply regretted by your Council in view of his great and long-continued services to the Society and to Botany generally, and his kindly personality. The vacancy thus caused among Vice-Presidents was filled by the election of Mr. F. W. Metelerkamp, who had tendered his resignation as Chairman of Council on account of health after many years of service to the Society, Mr. C. J. Sibbett being elected in his place. Mr. W. Olive having tendered his resignation, the two vacancies on the Council were filled by the election of Mr. Hugo Brunt and Mr. William C. West.

**JOURNAL OF THE BOTANICAL SOCIETY, Part XXIX, 1943.**—The publication of this number of the Journal has been delayed in order to include this Annual Report and Accounts.

**JOURNAL OF SOUTH AFRICAN BOTANY**, published by the Trustees of the National Botanical Gardens. Volume IX was published during 1943 and contained several contributions of botanical and historical importance. Mrs. H. M. McKay drew up a schedule of Burchell's South African Itinerary on the basis of the modern topographical survey with ten sectional maps. New discoveries and descriptions of plants were published, in most cases with illustrations, by Captain T. M. Salter, Mrs. M. R. Levyns, Dr. G. F. Papenfuss, Mr. G. G. Smith, Miss W. F. Barker, Professor R. H. Compton, Miss F. M. Leighton, Dr. R. A. Dyer, Mr. C. A. Smith, Father F. J. Gerstner, Professor R. S. Adamson, Miss E. Esterhuysen and Dr. E. P. Phillips. Reviews of important new books were also included. Members of the Botanical Society have the privilege of subscribing at reduced rates (15s. per annum) to this scientific Journal.

**HERBARIUM.**—Steady progress was made and the collections have been increased by over 5,000 sheets of named specimens, drawings, photographs and descriptions. The total number of sheets in the Herbarium is now 25,146. Considerable numbers of identifications have been made for Members of the Society and others, as well as for Gardens' purposes. A system of card indexing has begun and is making rapid progress. Systematic work on various genera and species went on actively, resulting in publication

in some cases, and a very large number of determinations were made.

**KIRSTENBOSCH NOTES.**—During the year 3,847 packets of seeds were distributed from the Gardens to Members of the Society and to other botanic gardens. Contributions of seeds, bulbs, cuttings and plants to the number of 693 items were received from correspondents for cultivation in the Gardens, in addition to 1,181 specimens for the Herbarium. Details of development and maintenance in the Gardens are given in the Annual Report of the Director to the Trustees which is distributed to Members of the Society.

**ANNUAL GATHERING, 1943.**—This took place at Kirstenbosch on Saturday, the 2nd of October, in favourable weather. As before, in lieu of providing refreshments, your Council authorised the donation of £20 to the South African Red Cross Society.

**KIRSTENBOSCH SUNDAY.**—This event took place on the 26th of September and attracted a large number of visitors. £120 was collected during the day and handed to the South African Red Cross Society.

**KAROO GARDEN, WHITEHILL.**—Mainly as the result of a circular letter addressed to Members of the Society, there has been a considerable increase in the number of subscribers to this Garden. Subscriptions received during the year amounted to £136 as compared with £90 for the previous year.

**WILD FLOWERS PROTECTION SECTION.**—The Membership of this Committee remains unchanged, Professor Compton being elected Chairman upon the resignation of Mr. Metelerkamp, who had held that office since the inception of the Section in 1939. Mr. C. S. Hubbard having resigned his co-opted membership of the Committee, Mr. John Martley was elected in his place.

**SILVER TREES AT KIRSTENBOSCH.**—During the year investigations have been continued by several leading Government Entomologists and other scientists with a view of tracing the life history of the borer beetle that is causing considerable destruction of Silver Trees at Kirstenbosch and elsewhere and of endeavouring to find means to combat the damage. No definite device for dealing with the matter has yet been found.

**OBITUARY.**—The Council desire to express their sincere regret for the loss the Society has sustained by the death during the year of a number of old

Subscribers to Kirstenbosch and Whitehill. Among these were Lady Rose Innes, widow of Sir James Rose Innes, for many years President of the Society, and Mr. L. Reynolds, a former Life Member.

THANKS.—Your Council wish to express their great indebtedness to the South African Association for the use of their Board Room for meetings of Council and

the Wild Flowers Protection Committee and to the Press for their co-operation in reporting the proceedings of the Society.

C. J. SIBBETT,  
*Chairman.*

L. A. SOLOMON,  
*Hon. Secretary and Treasurer.*

## Report by the Wild Flowers Protection Section Committee for the Year Ending 31st December, 1943.

Your Committee met on four occasions during the year under review. One of these Meetings, held on the 2nd of April last, was called for the purpose of considering the Draft Amendment to the Wild Flowers Protection Ordinance, proposed by the Administrator, with a view of controlling the export of wild flowers from the Cape Province. The Committee agreed to support the Draft Amendment on the assumption that annual permits to export would be obtainable by recognised botanical workers and that the export of specimens from the Province to certain Botanical Institutions in other Provinces should also be permitted. The latter provision was effected by Proclamation No. 132 of 29th November, 1943. During the year several personal applications for permits have been referred to the Section by the Provincial Administration, to whom advice in such instances has been tendered.

Mr. F. W. Metelerkamp having formally announced his intention of retiring from the Chairmanship of the Committee, Professor R. H. Compton was elected in his stead on the 21st of May. Mr. Metelerkamp has been Chairman of your Committee since the inception of the Section, having been elected at its first Meeting on the 19th of January, 1939. Mr. Metelerkamp has been untiring in forwarding the objects for which the Section was formed and your Committee take this opportunity of expressing appreciation of his great services in connection with the protection of our native flora.

The death during the year of Mr. Frank Cartwright has removed one who has rendered great service to wild flowers protection and to the Society generally. He acted as Honorary Secretary and Treasurer to this Section for a number of years and resigned on account of ill-health.

During the year Mr. John Martley was co-opted to the Committee and Mr. L. A. Solomon was elected Secretary and Treasurer.

MEMBERSHIP of the Section now stands at 292, an increase of two on the previous year.

FINANCIAL.—The amount to the credit of the Section is £327 5s. 3d., an increase of £62 12s. 9d. for the year.

DESTRUCTION OF INDIGENOUS TREES AND FLORA.—Your Committee have made further representations to the Provincial Administration against the destruction of shrubs and trees in order to provide fuel for workers on the National and other Roads and have received the assurance of that Authority that all wood and coal required by employees on road construction was being provided free of cost. Similar assurances have been given by the other Provincial Administrations of the Union.

RESERVES.—The Sub-Committee formed to investigate the possibilities of forming further Flower Reserves in the Cape Province has been carrying on with this work. In particular it has been successful in interesting the Cape Divisional Council to the extent that they have stated that they are prepared to accept the Trusteeship of any Nature Reserve that may be established in the area under its control for the protection of wild flowers.

GENERAL.—A number of projects, involving expenditure, which the Committee has under consideration providing for a more general interest in the preservation of our wild flowers has perforce been postponed until times are more normal, since at the present time such schemes would involve expenditure on an unduly high basis.

R. H. COMPTON,  
*Chairman.*

L. A. SOLOMON,  
*Hon. Secretary and Treasurer.*

## THE BOTANICAL SOCIETY OF SOUTH AFRICA.

## BALANCE SHEET as at the 31st December, 1943.

|  | £   | s. | d. | £      | s. | d. |  | £   | s. | d. | £      | s. | d. |
|--|-----|----|----|--------|----|----|--|-----|----|----|--------|----|----|
| Life Members' Fund as at 31st December, 1942 . . . . .                       | 955 | 0  | 0  |        |    |    | Cape of Good Hope Savings Bank:  |     |    |    |        |    |    |
| Received during the year . . . .   | 175 | 0  | 0  |        |    |    | Deposit with Interest at 3½% p.a. accrued as at 31st December, 1943 . . . . .  |     |    |    | 591    | 2  | 2  |
|  |     |    |    | 1,130  | 0  | 0  | United Building Society:   |     |    |    |        |    |    |
| Subscriptions paid in advance . .  |     |    |    | 51     | 6  | 0  | Fixed Deposit for 12 months  | 412 | 0  | 0  |        |    |    |
| Subscriptions to Karoo Garden, Whitehill:                                    |     |    |    |        |    |    | Interest at 3% p.a. accrued  | 5   | 11 | 9  |        |    |    |
| Balance as at 31st December, 1942 . . . . .                                  | 1   | 15 | 2  |        |    |    |  |     |    |    | 417    | 11 | 9  |
| Received during 1943 . . . . .   | 136 | 4  | 8  |        |    |    | Savings Bank Account at Interest of 2% p.a. with Interest accrued . . . . .    |     |    |    | 79     | 19 | 4  |
|  |     |    |    | 137    | 19 | 10 | S.A. Permanent Building Society:   |     |    |    |        |    |    |
| Amount advanced during 1943  | 125 | 0  | 0  |        |    |    | Fixed Deposit for 12 months  | 334 | 4  | 6  |        |    |    |
|  |     |    |    | 12     | 19 | 10 | Interest at 3% p.a. accrued  | 6   | 15 | 1  |        |    |    |
| Subscriptions to Wild Flowers Protection Section:                            |     |    |    |        |    |    |  |     |    |    | 340    | 19 | 7  |
| Balance as at 31st December, 1942 . . . . .                                  | 264 | 12 | 6  |        |    |    | Fixed Deposit for 12 months  | 618 | 0  | 0  |        |    |    |
| Subscriptions received, 1943 . .   | 60  | 16 | 0  |        |    |    | Interest at 3% p.a. accrued  | 8   | 6  | 7  |        |    |    |
| Interest on Fixed Deposit received during 1943 . . . . .                     | 6   | 7  | 5  |        |    |    |  |     |    |    | 626    | 6  | 7  |
|  |     |    |    |        |    |    | Wild Flowers Protection Section:   |     |    |    |        |    |    |
| Less—  |     |    |    | 331    | 15 | 11 | Fixed Deposit for 12 months with the S.A. Permanent Building Society . . . . . | 207 | 0  | 0  |        |    |    |
| 5% of Subscriptions 1943 credited to General Administration Expenses £3 0 10 |     |    |    |        |    |    | Interest at 3% p.a. accrued  | 4   | 18 | 8  |        |    |    |
| Stationery, Bank Charges, etc. . . 1 9 10                                    | 4   | 10 | 8  |        |    |    |  |     |    |    | 211    | 18 | 8  |
|  |     |    |    | 327    | 5  | 3  | Cash at Standard Bank of South Africa . . . . .                                | 115 | 6  | 7  |        |    |    |
| Bailey-Taylor Show Card Issue . .  |     |    |    | 6      | 7  | 7  |  |     |    |    | 327    | 5  | 3  |
| National Botanic Gardens:  |     |    |    |        |    |    | General Account:   |     |    |    |        |    |    |
| Surplus for 1943 . . . . .   |     |    |    | 1,034  | 2  | 4  | Cash at Standard Bank of South Africa . . . . .                                |     |    |    | 178    | 16 | 4  |
|  |     |    |    | £2,562 | 1  | 0  |  |     |    |    |        |    |    |
|  |     |    |    |        |    |    |  |     |    |    | £2,562 | 1  | 0  |

## REVENUE and EXPENDITURE ACCOUNT for the 12 months ending 31st DECEMBER, 1943.

|   | £   | s. | d. | £      | s. | d. |                                 | £   | s. | d. | £      | s. | d. |
|---|-----|----|----|--------|----|----|---------------------------------|-----|----|----|--------|----|----|
| General Expenses . . . . .                          | 12  | 18 | 11 |        |    |    | Subscriptions:                  |     |    |    |        |    |    |
| Less—Charged to the Wild Flowers Protection Section | 3   | 0  | 10 |        |    |    | Family Members . . . . .        | 213 | 11 | 0  |        |    |    |
|   |     |    |    | 9      | 18 | 1  | Ordinary Members . . . . .      | 829 | 18 | 0  |        |    |    |
| Honorarium to Secretary and Treasurer . . . . .     |     |    |    | 75     | 12 | 0  | Associate Members . . . . .     | 147 | 0  | 8  |        |    |    |
| Bank Charges . . . . .                              |     |    |    | 5      | 18 | 5  |                                 |     |    |    | 1,190  | 9  | 8  |
| Stationery, Printing, etc. . . .                    |     |    |    | 28     | 16 | 10 | Interest from Investments . . . |     |    |    | 68     | 3  | 5  |
| Postages and Receipts . . . .                       |     |    |    | 14     | 16 | 7  | Sales of Journals . . . . .     |     |    |    | 0      | 8  | 0  |
| Journal, Part XXVIII (1942):                        |     |    |    |        |    |    | Sales of Mathews' "S.A. Plants" |     |    |    | 0      | 3  | 0  |
| Printing, Circulating, etc. . .                     | 107 | 3  | 10 |        |    |    |                                 |     |    |    |        |    |    |
| Less—Received from Advertisements . . . . .         | 29  | 0  | 0  |        |    |    |                                 |     |    |    |        |    |    |
|   |     |    |    | 78     | 3  | 10 |                                 |     |    |    |        |    |    |
| Annual Gathering at Kirstenbosch                    |     |    |    | 3      | 18 | 0  |                                 |     |    |    |        |    |    |
| Donations:  |     |    |    |        |    |    |                                 |     |    |    |        |    |    |
| To the S.A. Red Cross Society                       | 20  | 0  | 0  |        |    |    |                                 |     |    |    |        |    |    |
| Less—Donations received . .                         | 12  | 2  | 0  |        |    |    |                                 |     |    |    |        |    |    |
|   |     |    |    | 7      | 18 | 0  |                                 |     |    |    |        |    |    |
| Surplus for the year 1943 . . .                     |     |    |    | 1,034  | 2  | 4  |                                 |     |    |    |        |    |    |
|   |     |    |    | £1,259 | 4  | 1  |                                 |     |    |    | £1,259 | 4  | 1  |

Audited and found correct in accordance with the  
(Sgd.) W. A. HICKS, Auditor.  
Cape Town, 7th March, 1944.

Books and Vouchers of the Society.  
(Sgd.) C. J. SIBBETT, Chairman.  
(Sgd.) L. A. SOLOMON, Hon. Treasurer.



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Ordinary Members:

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The star (\*) indicates Members who are also Subscribers to the Karoo Garden, Whitehill.

The cross (†) indicates Members who are also Subscribers to the Wild Flower Protection Section.

In case of any inaccuracy in the following list it is requested that notification should be made to the Hon. Secretary,  
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- (b) To augment the Government grants towards developing, improving, and maintaining fully equipped botanical gardens, laboratories, experimental gardens, etc., at Kirstenbosch and Whitehill.
- (c) To organise shows at which may be displayed the results of botanical experiments or cultural skill in improving the different varieties of South African flora.
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- (e) To promote the preservation of the Native Flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

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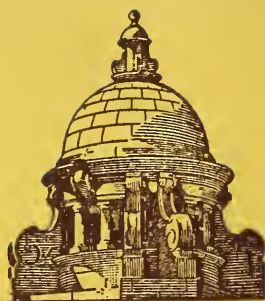
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Edited by R. H. COMPTON  
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## PLATES.

Frontispiece: *Aloe gariepensis* and *Pachypodium namaquanum* at Sperlingputs, S.W.A.

(Photo: G. W. Reynolds)

Plate II: *Encephalartos transvenosus* at Modjadjie's Kraal, Transvaal.

# News and Notes

IT is pleasant to be able to record a substantial increase in membership of the Botanical Society. The total has for several years hovered below the two-thousand mark, and now it is perceptibly nearer that figure. If Members would now individually do their share in enlisting new supporters for the National Botanic Gardens, the period of peace, which seems to be fast approaching, could be marked by reconstruction and development at Kirstenbosch, long overdue, with the backing of a Botanical Society of impressive size.

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To Members in search of an idea for a birthday or Christmas present for a friend it may be suggested that membership of the Botanical Society would make a novel kind of gift which would certainly be appreciated by the recipient and would help the Gardens at the same time. Why not use the enclosed subscription form for this purpose?

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Kirstenbosch has received a bequest of £1,000 from the late Mr. William Galvin, of Cape Town, to be utilised in development.

\* \* \* \* \*

The late Mr. J. B. Taylor was a generous supporter of the National Botanic Gardens. He and Mrs. Taylor became Life Members of the Botanical Society in 1920. In 1929 he was elected a Vice-President, a post which he held for ten years. He was also an (alternate) member of the Board of Trustees from 1930 to 1934. He was interested in investigations of essential-oil producing plants, and presented an experimental still to the Gardens. He was one of the inaugurators of the Cape Times "Save the Silver Trees" and Research funds in 1934, making a donation of £200; and in 1936 he made a further donation of £500 to the Gardens, in lieu, as he said, of a bequest and "as a mark of his appreciation of the valuable work being done at Kirstenbosch." He also co-operated with the late Sir Abe Bailey in the Botanical Society's issue of show cards.

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Back numbers of this Journal are a mine of information on the cultivation of native plants, as well as on the natural history, both vegetable and animal, of Kirstenbosch and on many other subjects. These

back numbers can in most cases be purchased from the Hon. Secretary, and Members of the Society have the privilege of obtaining them at reduced rates, which will be furnished on application. Additional copies of the current Part can be bought for 1/6.

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Last year Mr. F. W. Thorns, Curator of Kirstenbosch, published an article in this Journal on the growing of Proteaceae. He has now written a second article in the series, which will be found on a later page. This deals with the cultivation of our indigenous spring-flowering bulbs.

\* \* \* \* \*

The past thirty years or so have seen the disappearance of the Silver Tree—that most characteristic and beautiful of all our trees—from the greater part of the area that it once occupied. Only at Kirstenbosch (where special efforts have been made to save them from fire and the competition of exotics, especially pines), in two or three other small localities where the exotics have not yet dominated them, and in the area planted by Mr. C. J. Sibbett (Chairman of the Council of the Botanical Society) on Little Lion's Head, can Silver Trees still be seen in any quantity. The struggle to save them from obliteration by pines, hakea, wattles and stinkbeans at Kirstenbosch has failed to achieve complete success owing to the incidence of mortality from other causes. These causes have been largely mysterious, but a valuable report by the Government Forest Entomologist, published in this Journal, throws light on the subject and indicates means of improvement, though the problem is by no means a simple one.

\* \* \* \* \*

The grove of Cycads at Modjadjie's Kraal in the Transvaal is one of the botanical wonders of this country and indeed of the world. Very few people have visited it, but one of them is Mrs. F. Milner, of Politsi, who has written an article for this Journal, and who has provided the accompanying photographs. Nowhere, probably, do Cycads grow in greater profusion nor (with the exception of occasional specimens of Cycas in the Pacific, Macrozamia in Australia, and of Microcycas in Cuba) to a greater height. The grove has been rightly proclaimed a national monument and placed under the protection of the commissioner and tribe.



## THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA.

We congratulate Captain A. R. Fairall, R.E., on the award of the Military Cross and Bar, gained in Italy. He and his wife (formerly Miss P. Bond) are both members of the Kirstenbosch staff on active service.

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The Edward Muspratt Solly Scholarship for 1944 was held by Miss L. R. van Niekerk for a part of the year until she was appointed to a professional post in the National Herbarium, Department of Agriculture, as also was her fellow-scholar of 1943, Miss E. Wasserfall. It is gratifying that the Scholarship and the training at Kirstenbosch, for which it provides an opportunity, should prove of such direct assistance, both to the scholars themselves and to botanical work in this country.

The Scholarship for 1945 has been awarded to Miss Christine S. Macfarlane, B.Sc. (Hons.) (St. Andrews), who has been in South Africa for five years and is returning to botanical work after a period of teaching in the Adams Mission, Natal.

\* \* \* \* \*

The Journal of South African Botany has now completed its tenth annual volume. It has proved of great value as a medium for the publication of scientific work on South African botanical subjects. Its contents are mainly systematic, but articles of historical, ecological and physiological character have frequently appeared. It has the important feature of being adequately illustrated. It is subsidised by the Trustees of the National Botanic Gardens and the subscription is therefore relatively low: and members of the Botanical Society have the further privilege of obtaining it at a discount of 25%. The number of subscribers is increasing steadily.

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The Kirstenbosch Cycads have been studied with great attention by Mr. M. R. Henderson, who wrote an article published in this Journal last year. Mr. Henderson, who, we regret to say, is shortly leaving the Kirstenbosch Herbarium, where he has held a temporary post, has written a much fuller account of the South African species of *Encephalartos*, which has been published in the Journal of South African Botany, January 1945. This is not a monograph but provides valuable material for a much needed revision of the genus.

\* \* \* \* \*

Captain T. M. Salter, R.N. (Ret.), has completed his study of the genus *Oxalis*, and this has been published as a supplementary volume of the Journal

of South African Botany, under the title "The Genus *Oxalis* in South Africa, a Taxonomic Review." It is a volume of 355 pages with 10 plates and 73 text figures drawn by the author, and contains a full account of over 200 species of this important genus, as well as several chapters on general aspects of the subject. The editorial notice says: "It is not too much to describe Captain Salter's book as one of the most important works on a large genus by any recent botanist. The fact that it has been mainly founded on the basis of living material as it occurs in the wild state gives it authority and value which is often lacking in indoor studies of preserved specimens. It will be indispensable to botanists for library reference, for rearrangement of collections and as a basis for all future work on the genus." The book can be obtained from Kirstenbosch, price 35/- post free: a discount of 10% is allowed to subscribers to the Journal of South African Botany.

\* \* \* \* \*

Mr. Alfred E. Rutherford, of Cape Town, has presented as "a gift to the Library, National Botanic Gardens, Kirstenbosch, for the use of Members" a fine copy of Mrs. Loudon's "Ladies' Flower Garden." This book, dated 1841, contains coloured illustrations of a surprisingly large number of Cape bulbous plants, cultivated in England more than a century ago. The copy presented was formerly in the possession of the celebrated Baron C. von Ludwig, and is a token of the donor's "treasured memories" of Kirstenbosch. It can be seen by Members in the Gardens Herbarium.

\* \* \* \* \*

Mr. G. W. Reynolds is well known to botanists as our foremost authority on the genus *Aloe*. Members of the Botanical Society will recall his interesting articles in this Journal—one in 1934 on the remarkable Basutoland *Aloe polyphylla*, and another in 1935 on *A. Marlothii* and its hybrids. To readers of the Journal of South African Botany he is known as the author of many new species and the elucidator of several *Aloe* problems. He is one of the most constant and valued contributors of plants that Kirstenbosch has ever had. He is now actively engaged in the final writing-up of his book on the South African *Aloes*, which will be a work ranking with the best monographs in existence. It will be copiously illustrated by photographs, mostly of his own taking. (He has kindly lent the block for the frontispiece of this Journal.) These illustrate also his unique knowledge of the *Aloes* in the wild state, acquired over many years' energetic travel and collecting.

Mr. Reynolds has so far been unable to obtain good habitat photographs of flowering plants of *Aloe glauca*, *A. mitriformis* and varieties, *A. succotrina* (= *A. purpurascens*), *A. haemanthifolia*, *A. brevifolia* and varieties, and *A. distans*. He would be most grateful for photographs of any of these suitable for reproduction: full acknowledgment would of course be made. (Address: Box 2097, Johannesburg.)

We wish Mr. Reynolds the happiness and satisfaction of bringing his work to completion, and we look forward with keen anticipation to sharing in the fruits of his labours and experience.

\* \* \* \* \*

The Herbarium of the National Botanic Gardens has made steady progress, and at the end of its first five years it comprises 30,000 sheets and has reached the capacity of the present building. Its value as an intrinsic part of the Gardens is becoming more and more realised. It must never be forgotten that Kirstenbosch has fundamentally a botanical basis, and that it can only fully achieve its purpose through co-ordination of its scientific and horticultural functions. For this reason the importance of the Herbarium being situated in the Gardens and part of the same organisation cannot be overestimated.

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The Karoo Garden at Whitehill has been in existence for 24 years. It was established for the cultivation and study of the flora of the arid districts of the Union—especially the succulent plants. For this purpose Whitehill has shown itself an excellent site in many respects, especially soil and climate. It has however had the disadvantage of remoteness, which has made the working of the Garden very difficult and has restricted public interest. It has become increasingly clear that the difficulties inherent in the site were in fact almost insuperable; the last straw has been the removal of the main road to a distance of about three miles from the Garden, which will reduce visitors to vanishing point. A new and more convenient site has therefore been sought, and this has been found near Worcester. The municipal authorities have shown themselves keenly interested in the matter, and have offered to give a suitable piece of Karoo land and to provide every encouragement and facility for the purpose. The transfer of the Karoo Garden from Whitehill to Worcester will therefore take place as soon as the necessary preliminaries have been arranged.

The National Veld Trust, which was formed about two years ago to fight soil erosion, mountain and veld burning, and all other abuses of South Africa's natural resources, and to encourage all efforts to restore and protect those resources, is gradually expanding.

A Regional Committee for the Winter Rainfall Area was formed in Cape Town in September, 1944. The relations between the Central Board of the Trust and Regional Committees have been defined and it is now possible to proceed with the enrolment of members.

One of the primary aims of the Committee is to co-operate in every way possible with other organisations having parallel aims, notably with the Botanical Society.

The Trust is concerned with all problems of soil use and abuse throughout the Union, but the Regional Committees will naturally concern themselves primarily with problems peculiar to their own areas; these include, in the Western Province, the preservation of mountain land and where possible the regeneration of species, like the silver tree, which have been threatened by a variety of dangers.

The Committee hopes soon to issue literature setting out its aims and plans in more detail, and would appreciate any possible help from members of the Botanical Society.

The members of the Committee are: Chairman and Acting Hon. Secretary, Mr. D. R. D'Ewes; Vice-Chairman, Professor R. H. Compton; Hon. Treasurer, Dr. O. M. Gericke; Mrs. L. E. Hertslet, Dr. Eric A. Nobbs, Dr. W. E. Isaac, Professor W. J. Talbot, Professor J. T. R. Sim, Dr. Louis Nel, Mr. H. Hugo Brunt, Mr. H. du P. Steytler.

Further information may be obtained from Mr. D'Ewes, Clare, Eden Road, Claremont.

\* \* \* \* \*

During the past summer, just as in previous summers, mountain fires in the Cape Province have been widespread and largely uncontrollable. Their causation has been, in known cases and probably in the vast majority of cases, deliberate—though there have been notorious instances of gross carelessness on the part of military, road parties, etc. Regulations aimed at "picknicking" and such like will never prevent the incendiary from striking his intentional match, whether it be with a view to grazing for his scrub animals, killing bushes for firewood, stimulating a spasmodic growth of wild flowers for plunder, or for malice, mischievousness or disgruntledness.



## THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA.

If we value our mountain vegetation at its true worth, as being the source of scenic beauty, the mitigator of our climate and the regulator of our water supply on which our life depends, we shall take vigorous steps to suppress fires with all possible promptness and to deal forcibly with those who cause them.

\* \* \* \* \*

There have always been fires in the Cape.

The Cape coastal vegetation, although apparently destroyed by a fire, is to a large extent actually fire-proof, and regenerates itself naturally.

There is, however, all the difference in the world between fires at intervals of 10—15 years and fires every two or three years. The former may be fierce and spectacular, but the vegetation recovers as if by miracle and no permanent harm is done, either to the vegetation as a whole or to individual species which have been able to set seed in the interval. But areas frequently burnt lose their soil, their humus, their water-holding capacity, their heaths and proteas and other shrubby plants, their vegetation as a whole: they become scandalous and valueless desert wastes.

The moral is that we should endeavour to reduce the frequency of fires; that we can never hope to prevent fires altogether; and that the occasional "fierce" fire is an indication that the vegetation has been in good condition and can be expected to recover satisfactorily.

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The problem then is to reduce the frequency of fires, especially in our mountains. This can best be done by governmental acquisition of mountain areas and their protection on as strict lines as if they were plantations—that is to say by the exclusion of grazing, the provision of adequate fire-paths and the maintenance of a sufficient force of employees with equipment for fire prevention and suppression. "Controlled burning" may assist if carried out on a long rotation (10—15 years).

Soil conservation by the prevention of erosion is a vital subject, and the appalling results of the negligent exploitation of our country have become evident to anybody with eyes to see. But it is not soil for its own sake but what grows on it that we are chiefly concerned with. This may be a truism, but when we hear of the fantastic schemes to "plant Table Mountain with grass and so stop erosion" we are impelled to coin the word *agrostomania*.

It should be an axiom that "There is nothing like

the native vegetation" for conserving soil, water and scenery.

\* \* \* \* \*

A committee of the Royal Society of South Africa has drawn up a report, largely written by Dr. C. L. Wicht, Forest Research Officer at Jonkershoek, on the preservation of the Cape Mountain Vegetation, and it is hoped that this will be published and made available to the public.

Apart from other important recommendations, the report urges the establishment of four great Nature Reserves in the Western Cape Province: one in the Cederberg; one in the French Hoek-Drakenstein-Hottentots Holland area; one in the Swartberg; and one in the Outeniquas. In these the strictest care would be taken to conserve the natural vegetation, to exclude exotic weeds, etc. The proclamation and control of such Reserves should not interfere with the general necessity for the protection of all mountain catchments.

\* \* \* \* \*

The Outeniqua area should be taken over as a National Park without delay, if only to save the one remaining herd of Mountain Zebra from final extinction. The area in question includes the Robinson and Montagu Passes and the old Voortrekker Road up the Cradock Berg, and is accessible by railway. Its vegetation ranges from Karoo to evergreen forest, and the mountain sides are as rich as any in the Cape in beautiful species of wild flowers. Most of the land involved is already in the possession of the Government. The National Parks Board could take over and administer this area in such a way as to recognise the value of our flora as well as of our fauna, and to give the Cape Province something equivalent to the conservation programme which is being carried out in the Transvaal.

\* \* \* \* \*

The Mountain Club has been taking practical steps to reduce the menace of the encroaching pines on Table Mountain. Each month voluntary parties equipped with tools have been making an onslaught on the scattered pines, especially on the Lower Plateau and in Echo Valley. Thousands of trees, young and older, have been cut down and the natural aspect of these parts of the Mountain has been restored. The work has been undertaken with the approval of the Cape Town and Union forest authorities, who are prevented at the moment from carrying out their



intended schemes, which it is hoped will be put into operation after the war.

\* \* \* \* \*

Owing to the great increase in cost of book production it is necessary to increase the advance subscription for "The Wild Flowers of the South West Cape" to 30/-. Those wishing to subscribe to this book (plates by Mrs. Garrett Rice, text by Professor R. H. Compton) are invited to communicate with Captain C. Struben, Nederberg, Talana Road, Claremont. No date for publication can be given at present.

A new Seed-List is distributed to Members of the Botanical Society with this Journal. Members requiring seeds are asked to note and adhere to the instructions at the head of the list. In particular it is sometimes necessary to remind Members—as well as the general public—that Kirstenbosch is *not* a nursery garden and that it cannot undertake to provide plants, which are only raised in quantities sufficient for the requirements of the Gardens themselves.

## Cultivation of Bulbs from the Winter Rainfall Area of the Cape

By F. W. THORNS.

**A**MONG the wide range of bulbous plants indigenous to the winter rainfall area of the Cape are many decorative plants well worthy of cultivation. *Ixia*, *Lachenalia*, *Watsonia*, *Gladiolus*, *Babiana*, *Tritonia*, *Freesia* and *Sparaxis* are well known genera in gardening circles, and hybrids raised from wild species of these genera figure in many overseas catalogues. Not all of these are "bulbs" in the strict sense of the term, but for convenience are regarded as such for the purpose of these notes.

At Kirstenbosch we are chiefly concerned with species, and have not made any special efforts to produce garden hybrids. At present the number of species cultivated is well over three hundred. Only a relatively small proportion of these can be considered to have sufficient general appeal to warrant their inclusion in a list of garden plants, and of this minority a number have proved to be difficult to cultivate, and therefore cannot be generally recommended.

In the main, we find that those species which flower between September and October are most successful here, probably owing to weather conditions. Many Cape bulbs produce their flowers in August or earlier, during which period Kirstenbosch is usually having heavy rains and little or no sun. Consequently conditions are unfavourable for these early-flowering species; their blooms are bruised and battered by the weather and they set very few seeds.

This question of seed setting is important, as many species of Cape bulbs do not reproduce themselves by bulb division or offsets, but must be propagated from

seeds. Many of the *Lachenalias* and a number of the small-cormed *Iridaceae* appear to depend entirely on regeneration from seeds—which under favourable conditions are produced in profusion—for their survival; the bulbs or corms apparently dying after two or three flowering seasons.

The requirements for the successful cultivation of Cape bulbs are outlined in the following paragraphs.

Plenty of sun is required at flowering time, and therefore an open situation, preferably with a north or north-east slope is recommended as suitable. Soil should be light and rich, with plenty of humus and reasonably good drainage. Heavy clay soils are unsuitable, but fairly heavy soils could be made suitable by the addition of copious dressings of leaf mould, compost and sand. Very sandy soils might be used with success, but will need humus in even larger amounts. It might be argued that bulbs are found growing in the wild in almost pure sand, and also in standing water, but while this is correct it is doubtful whether attempts to cultivate them under such conditions would be successful. The natural soil of the Kirstenbosch Bulb Nursery is of a compact, slightly heavy nature, deficient in humus and containing no sand or grit. Leaf mould, compost and sand have been used to improve its physical nature, and dressings of compost, with phosphatic fertiliser and lime are added when replanting is done. The land originally sloped at a grade of about one in eight and was cultivated in this condition for about fifteen years, but recently the area has been terraced to prevent loss of soil by sheet erosion.

Ample supplies of water are needed during the growing season, that is from May to October. In the Cape Peninsula the normal winter rains are usually sufficient, but some artificial watering is needed in exceptionally dry seasons. It has been observed that early heavy rains, say in February or March, will start many of the bulbs into growth, but that when this occurs the subsequent flowering season is a poor one. From this it would appear that it is disadvantageous to induce early growth by watering, at any rate under Cape conditions. After flowering no further watering is required, the bulbs having completed their growth and commencing to ripen. In the Cape the bulbs may be left in the ground during the summer if the land is not needed for other plants, but in wet summer areas they should be lifted and stored.

The question of whether to lift the bulbs annually, or to leave them in the ground, will depend on the circumstances. In the writer's opinion it is better to lift and replant every fourth year, unless there is good reason to do otherwise. Experience shows that after four years those bulbs that reproduce themselves vegetatively will become overcrowded, and those that do not have this habit will become thin and patchy. Naturally one cannot improve the soil without lifting the bulbs, but top-dressing can be done as growth begins. For this purpose we find kraal manure and a phosphatic fertiliser, lightly pricked in, to be effective.

Before passing on to the various species which may be grown it is necessary to mention the need for some protection from moles. These animals—more correctly mole-rats—are very abundant in the Kirstenbosch locality, and much of the work carried out on bulbs in the ten years prior to 1936 was nullified by their depredations; they being capable of clearing out whole beds of bulbs in a matter of days. Records show that every known method was used to combat these moles, with little apparent success, and it was not until the whole Bulb Nursery had been given the protection of a mole-proof concrete barrier that real progress could be made. This barrier, consisting of a five-foot wall of two-inch concrete, with about nine inches above ground, was constructed in 1935, but still another two years elapsed before all moles had been exterminated in the enclosed area.

Following are a few selections of species that have proved to be easy to cultivate at Kirstenbosch, and that are sufficiently showy to have a claim as decorative plants. Many others could be added to comply with the second qualification, but not with the first.

*Babiana* is one of the easiest genera to cultivate. *B. atropurpurea* (purple), *B. erectifolia* (mauve), *B. rubrocyanea* (purple with ruby centre), *B. stricta* (blue-purple), *B. sulphurea* (white), and *B. villosa* (crimson) are all September-flowering decorative species. They are easily raised from seeds, flowering the second season, and will thrive where soils are too heavy for some other types. They reproduce themselves by offsets.

*Sparaxis tricolor* (red), *S. bulbifera* (yellow), and *S. grandiflora* (tall white and dwarf purple) and their various hybrids are very decorative and make a brilliant show in sunny weather. Many growers have had difficulties with this genus, and various theories have been advanced as to reasons for failure. In the writer's opinion these troubles have been due, in all probability, to poor soil conditions. *Streptanthera cuprea* (red) is allied to *Sparaxis*, with which it hybridises readily. All are easily raised from seeds, and if well treated will produce a few flowers the first season.

*Lachenalias* in general prefer sandy soil conditions. A few species reproduce freely by offsets, but the majority must be increased by seeds. Bulbs raised from seeds flower at two or three years old according to species. Of the numerous species available a good selection is:—*L. Gillettii* (pale purple and blue), *L. glauca* (blue), *L. Mathewsii* (yellow), *L. mutabilis* (yellow and purple), *L. Peersii* (pink), *L. Pillansii* (rosy purple), *L. suaveolens* (crimson, white-tipped petals). These flower in August and September.

*Ixias* that are recommended are *I. conica* (bronze), *I. curta* (orange), *I. maculata* and varieties (yellow and orange), *I. polystachya* (pink, blue and white). All are September-flowering, are easily raised from seeds to flower the second season, and increase by offsets.

*Freesias* flower in August, and so fall into the list of those usually damaged by winter rains. They are easy to grow, increase by vegetative means, and will flower the first season from seeds if conditions are good. The coloured hybrids have practically ousted the old *F. lactea* as a garden plant, but not all of the newer varieties have the exquisite scent of that species.

*Romuleas* grow readily from seeds, but do not increase by offsets, and must be renewed regularly from seeds. Many of the species have smallish flowers, but *R. subulata* bears large reddish blooms and is well worthy of a corner in the garden.



Tritonias are well known as cut flowers in the Cape, particularly *T. crocata* (pink). Other decorative species are *T. deusta* (orange), *T. hyalina* (pinky orange), and *T. lineata* (cream). These will flower the second year from seeds and increase well by off-sets. All are October-flowering.

Others that might be added to the list are *Ornithogalum thyrsoides* (white), *O. lacteum* (white), *Cyanella orchidiformis* (mauve), *C. capensis* (blue), *Geissorhiza* species, particularly *G. splendissima* (deep blue), *Hesperantha Stanfordiae* (yellow), *H. Metelerkampiae* (yellow and brown), *Micranthus plantagineus* (blue) and various *Homeria* and *Morea* species.

Many species of *Gladiolus* have been cultivated at Kirstenbosch, but very few have settled down well enough to include them in a list of bulbs easy to grow. Probably this genus needs soil conditions rather different from the foregoing, and there is reason to believe that they dislike being disturbed. *G. alatus* (reddish), *G. tristis* (cream), and *G. venustus* (yellow and purple), appear to be more amenable than the rest. Many other species are still being grown and may yet be proved easy to manage.

All of the above are comparatively small bulbs of dwarf habit, and need but a few inches of space. Under nursery conditions here they are planted a few inches apart, according to the size of the bulbs, with six inches between the rows. This method produces a massed effect when the plants are in flower, and under garden conditions it might be advisable to give wider spacing and inter-plant with low growing annuals, such as *Felicias*, to make a ground cover.

The correct depth to plant is a difficult problem, as in nature this factor varies considerably, even within the same genus. In practice it will be found that all can be safely covered with a thickness of soil approximating to about twice the length of the bulb. This will not be too deep for those that prefer shallow conditions, and those that like to be deeper will be found to have formed their new bulbs at lower levels in successive years. For instance, some species of *Babiana* will ultimately be found to have formed bulbs seven inches below the surface. Other *Babiana* species remain just below the surface.

Our method of propagating from seeds for all winter rainfall species is to prepare a level bed of sandy soil and sow the seeds thinly in shallow drills drawn at six inch intervals across the bed. The soil must be in fairly good condition as we prefer to leave the seedlings in the bed for two seasons, by which

time they are large enough to handle easily. After sowing we cover the seeds with sand, and if necessary water well. Here we sow in April, which is generally the beginning of winter rains. No shade or covering is given.

For small scale propagation it would be better to sow in flats or boxes, and carefully remove the seedling bulbs for wider spacing when dormant after the first season's growth. Alternatively they could be sown in small nursery beds where protection from summer rains could be given where required. Under these conditions they could be safely left for two seasons, and so the tedious job of handling first year seedling bulbs, which in many cases are extremely small, could be avoided.

Some of the *Watsonias* come within the scope of these notes. Being of larger habit they must be given at least twice the spacing mentioned above. They may be grown from seeds, in which case they will flower in two years, and all increase by division. Some that need similar conditions to the foregoing genera are *W. Ardernei* (white), *W. marginata* (mauve), *W. rosea* (pink), *W. Versfeldiae* (pink) and *W. Wordsworthiae* (pink).

No serious insect pests or diseases have appeared in Cape bulbs here. In 1940 considerable damage was caused to *Lachenalia* and *Ornithogalum* bulbs by the burrowing larvae of a fly, but the pest has not been seen since. Occasionally beetle larvae are found feeding on bulbs at lifting time, but not in sufficient numbers to cause alarm. A "rust" disease, caused by a fungus, is occasionally seen on one or two species of *Lachenalia*. It is easily controlled by Bordeaux mixture.

Tritonias, *Ixias* and *Sparaxis* often show a certain amount of browning of the foliage before flowering. This symptom is often referred to as "rust," but the writer has not seen any evidence of fungus disease in these cases. A certain amount of this drying of foliage is probably a natural occurrence, but there is reason to believe that it is accentuated under unfavourable soil conditions, such as poor soil or drought. At the same time it is possible that the complete collapse of foliage sometimes seen may be due to some bacterial wilt organism.

In conclusion it might be mentioned that an experiment to discover whether this browning of leaves was not due to the absence of "trace" elements in the soil was made a few years ago, but the results were inconclusive, and everything points to the need for good well-balanced soil for the successful cultivation of healthy bulbs.



# Report on the Silver Leaf Tree Borer

By F. G. C. TOOKE,  
*Forest Entomologist.*

## HISTORICAL.

THE steady dying-off of silver-leaf trees, *Leucadendron argenteum*, of recent years in the Cape Peninsula, particularly at Kirstenbosch, has been causing considerable concern not only to growers of this beautiful and unique tree, but also to the Council of the Botanical Society of South Africa, who fear that if this state of affairs should continue, the species may well become extinct.

It would seem that for several years now, the dying off of the trees has been ascribed to the injury caused by the attack of a boring beetle, but I have been unable to ascertain just how long ago this association between the insect and the tree first became recognised.\*

The first report of a boring beetle attacking silver-leaf trees appears to have been made by the Director of the National Botanic Gardens, Kirstenbosch, to the Stellenbosch-Elsenburg College of Agriculture, some time in 1942.

A brief investigation was made at that time by Mr. C. J. Joubert, Entomologist of the Stellenbosch University, but time did not permit of this investigation being followed. Subsequently Mr. Joubert reported that although he found trees dying here and there, there was in no case evidence of extensive borer injury, and none of the insects could be found. He suspected that the insect was of secondary importance in that it attacked only sickly, backward or mature trees, and acting on this surmise he had six trees ringbarked in the following spring, so as to get an idea of susceptibility to attack of trees in a backward condition.

Early in 1943, Mr. J. J. Kotze, Conservator of Forests, who is also a member of the Council of the Botanical Society, wrote urging that a further investigation be made, as the public were becoming alarmed at the dying off of the trees.

Owing to other pressing problems, the Forest Entomologist was not able to visit the Cape at the time, but on March 23rd, 1943, Dr. Smit, Dr. Nel and Mr. Munro of this Division inspected trees at Kirstenbosch and Claremont.

Mr. Munro's report has already been submitted to you and those interested, but I should like to reiterate

\*The fact that a Buprestid larva, working around the stem beneath the bark, was frequently associated with the death of young trees, was first demonstrated, as far as I

some of the main points raised by Mr. Munro, as they have a direct bearing on the problem.

Dr. Hesse of the South African Museum identified the beetle, from specimens submitted by Mr. Joubert per Mr. Munro, as *Sphenoptera (Tropidopeltis) sinuosa*, Cast & Gory; the species being recorded from the Cape of Good Hope, Natal and Transvaal.

With regard to the ringbarked trees mentioned above, Mr. Munro reports: "It was found that all the small trees (one to two inch diameter stems) had died. Apparently the treatment had been too drastic for them. Of the larger trees (about six inch diameter) only one had died. That it might have done so in any case, is possible, as trees are dying there from time to time. The others at least seemed to be in good condition and it may be noted that these trees had developed bridges of cambium across the ringbarked tissues." Remarking on the condition of trees on Wynberg Hill he says: "Here were a number of older trees, some obviously in a dying condition. One of the largest trees that had recently been blown over, was seen to be quite rotted away at ground level. Only a few emergence holes were seen, but a larva was found under the bark of a dead branch." He concludes as follows: "No data are available as to when and under what conditions the beetle attacks the tree. It was stated that Mr. Sibbett, who has grown the tree extensively, said that only young trees and old trees were attacked, and that strong, vigorous trees were not attacked. This does not appear to be quite reasonable. If a young tree were heavily attacked, especially if soil and weather conditions were also adverse, it would probably die (cf. the young ringbarked trees already mentioned). There is, however, no reason to suppose the beetle larvae may not be present throughout the life of a tree, even though the latter seems to be healthy. This could easily be shown by cutting up some healthy trees. Finally, when the tree is getting old and approaching the limits of its life (reported to be about fourteen years, possibly not more than twenty\*), then the accumulated effects of beetle attack plus the effects of various other agencies show themselves and the beetle is blamed for it all. know, by Miss E. E. Esterhuysen at Kirstenbosch in 1934. —Editor.

\*Certainly an underestimate: see below.—Editor.

I am not in a position to make much comment on the natural conditions of the silver-leaf tree. It may be suggested, however, that some undergrowth is needed, both as protection to the lower parts of the tree and to prevent undue desiccation of the soil. The suggestion is, in general, that under cultivation (in gardens) or more or less cleared conditions (as in Kirstenbosch), ecological conditions have been changed to the detriment of the silver-leaf tree. This change would serve to hasten the dying off of old trees and perhaps make the work of the beetle more apparent."

As the conclusions arrived at did not definitely establish whether the insect was responsible for the death of the trees or not, further representations were made to the Department for further investigation with a view to establishing this point. Accordingly the writer made an inspection of the affected area in October 1943 and again in May of this year. The following observations and data are a result of these inspections.

#### GENERAL OBSERVATIONS.

*Sphenoptera sinuosa* is a beetle belonging to the family *Buprestidae*, popularly known as flat-headed borers. Many of the beetles of this family feed to some extent on the foliage or bark of twigs of the host or some other plant. Where they are common they sometimes cause considerable defoliation to individual plants. All the larvae are miners in the tissues of plants and most species mine the inner bark or wood of trees and shrubs. The mining in the tissues of the plant may cause the death of a part or the whole of the plant, or, in the case of a forest tree, the injury or total loss of the wood which is the principal product.

Those boring in the bark or cambium usually mine the inner bark and outer wood of dying or dead trees. Some, however, will attack and kill apparently perfectly healthy cambium, either of a part or of the whole plant. Certain of the species that mine the living bark kill only part of the living tissue, which soon heals over and causes a "gum spot", "pitch pocket", "check" or other defect to form in the wood.

They are in the main a sun-loving family. *S. sinuosa* is an insect native to South Africa and so far as is known confines its attacks to the silver-leaf and other *Proteaceae*. At the very outset of the investigation one is faced with this undeniable fact that the insect and its host or hosts have always existed together. If the insect is a primary pest of the silver-leaf tree and is responsible for the large-scale mortality

now taking place, one would have expected silver-leaf trees to have become extinct ages ago, particularly as their natural habitat is such a restricted one. As far as I can ascertain, however, the present state of affairs only became noticeable about fifteen years ago. If this is so, then it must indicate one of three things.

- (1) That some ecological change has occurred in the habitats of the insect and its host which has caused the insect to become a primary pest.
- (2) That some ecological change has taken place in the habitat of the host which has tended to produce trees of low vitality or otherwise lay them open to attack by the insect which normally is a secondary pest.
- (3) That other agents or factors are responsible for the death of the tree.

#### INDICATIONS OF INJURY.

Usually there are few, if any, outward indications of wormy timber. The absence, or presence, and extent of injury can be determined only by felling and cutting into the tree in question. The presence or absence of the worm holes or galleries then will indicate the extent of the injury. In very young trees, that is up to 2 inch diameters, cracking of the bark is usually a sure indication of larval mines in the cambium underneath. Sometimes the oval exit holes made by the beetles on emerging from the tree can be seen in the outer bark and indicate injury within.

#### CHARACTERISTICS OF THE INSECT.

The *adult* of *S. sinuosa* is a small, slender blackish-bronze beetle, nearly half an inch long, bearing no conspicuous markings.

The *egg* of this species has not been observed. It probably is oblong oval, smooth and light coloured like those of closely related species.

The *larva* is about one and a quarter inches in length, and white to cream coloured with the exception of the mouth-parts, which are dark brown to black. The small and more or less retracted head is followed by three broad, flat segments comprising the thorax which, in turn, are followed by the ten sub-cylindrical and narrower abdominal segments, the whole body tapering gradually towards the hinder end with the last segment decidedly narrower than the preceding ones.

The *pupa* has not yet been obtained, but probably it resembles those of closely related species. It would be white in the earlier parts of the stage and would resemble the adult, except that the wing covers, wings,



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legs and antennae would be folded on the breast. During the later part of the stage it would take on more of the adult colouring.

### LIFE HISTORY AND HABITS.

So far little information has been collected regarding the period of emergence and flight habits of this species.

Mr. F. W. Thorns, Curator of Kirstenbosch Gardens, has obtained several specimens of the beetle which emerged from dead trees and branches kept in his office. All these emergences took place towards the end of the summer, that is, during March and April. On the other hand, all larvae seen by me in May were almost, if not quite, full-grown and one would expect these to produce adults in the spring. It is likely that in the case of larvae which are compelled to complete their development in wood which has dried out, such as the material Mr. Thorns collected, the period of development is considerably extended. The normal life cycle is probably about twelve months and the period of peak emergence of the adults is likely to be in the spring and early summer, but backward individuals will continue to emerge throughout the summer.

The adult is a strong flier and usually lays its eggs on the trunks of the trees, but it may also oviposit on branches as these have also been found attacked occasionally. In the young trees the favourite place for oviposition appears to be the six inches of the bole immediately above ground level.

The larva hatching from an egg laid by the adult on the bark begins a narrow mine or burrow through the bark. The burrow is extended in a tortuous or zig-zag direction, getting wider as the borer grows and in young trees, running mostly in the sapwood beneath the bark, but sometimes going for a short distance deeper into the wood. The borer packs the burrow behind it with its excrement and wood particles, which turn dark brown in the first or smaller portion of the mine. The flattened grub makes a shallow burrow that gradually widens to a third of an inch or more.

### THE NATURE OF THE PROBLEM.

There seems little doubt that the dying off of the silver-leaf trees in the Cape Peninsula has steadily increased during the past fifteen years. Professor R. H. Compton, Director of the National Botanic Gardens, Kirstenbosch, writes as follows: "There were formerly many trees which reached a height of

40—50 feet with a trunk girth of 6 feet. Further, the nearest estimate I could make of the age of such trees was at least 40 years; this was obtained by counting the number of stem-forks below the annual cones. A very serious deterioration has taken place in the last fifteen years or so, and there are now very few trees which succeed in reaching this size and age. Mortality is high at early years (as well as at other ages) and seed is not set until the tree is about 7 years old. Consequently the amount of seed available for natural regeneration has been tremendously reduced, and this strongly prejudices the species in the struggle for existence."

As the silver-leaf borer, *Sphenoptera sinuosa*, has been found associated with dead and dying trees and as many people, who have grown silver-leaf trees on a large scale, have found a high percentage of their trees infested with borer, it has perhaps been natural to ascribe the mortality to the attacks of and the injury caused by the insect.

The purpose of this investigation was to discover whether this was so, in other words, whether the attack by the borer was of a primary or secondary nature.

The problem, therefore, may briefly be set out as follows:—

- (1) If the insect is a primary pest, all dying and dead trees would show signs of extensive borer damage. This damage would be extensive enough to have caused the death of the tree. Dying or dead trees, however, would only be the final stages of the attack, for to be primary the infestation must have started on healthy, vigorous trees and the presence of the insect should be readily detected in these.
- (2) If the insect is a secondary pest, there are several premises one might make.
  - (a) that the death of the trees is being caused by some agency other than insects and the insect is attracted to the dying and sickly trees only;
  - (b) that the trees are in an unhealthy condition but would survive if it were not for subsequent attack by the borer;
  - (c) that the insect attacks the trees indiscriminately, but the damage it causes is never severe enough to cause death, this being caused by other agents.

### RESULTS OF THE INVESTIGATION.

In approaching a problem of this nature, which on the surface appears to be a most complex one, the



first thing to consider is the various ecological factors which go to make up the environment of the insect and its host-plant.

The obvious point to start an investigation of this sort, therefore, is in those areas which constitute the natural habitat of the silver-leaf. It is in such areas only that one can be sure of finding healthy, vigorous trees and where one would expect to find the age-old association between the insect and its host-plant unchanged. Areas where environmental conditions have become changed or altered can then be inspected and comparisons drawn.

Professor Compton considers that the silver-leaf tree finds its optimum condition for growth on the lower slopes of Table Mountain at Kirstenbosch. An inspection of this area revealed the fact that the trees were growing amidst a dense underbrush of the various species of shrubs and plants which go to make up the typical Cape mountain flora. This undergrowth, which reaches a height of anything from 6—8 feet, is so dense especially within 2 to 3 feet of the ground that one experiences considerable difficulty in forcing one's way through. Young silver-leaf seedlings have to force their way up through this growth and for years are completely sheltered from the sun and wind. Conditions such as these would not appear to be exactly favourable to a sun-loving insect with strong powers of flight. The dense underbrush, one would imagine, would impose a formidable mechanical barrier between the insect and the young trees.

The ringbarked trees referred to by Mr. Joubert and Mr. Munro are in this area and were inspected on my first visit to Kirstenbosch. I can only confirm Mr. Munro's observations as set forth above, that the surviving trees had all bridged the ring and appeared perfectly healthy. I did notice, however, that all showed quite numerous beetle exit holes above and below the ring and it seemed a surprising fact to me at the time that the trees had survived both borer attack and ringbarking. One would not expect this where a primary insect pest is concerned.

On my second visit to this area, I was accompanied by Professor Compton and Mr. Thorns. This was in May of last year. It was then noted that dead and dying trees were scattered throughout the area. Several of the dying trees were chosen for examination.

The first noticeable fact was that of all the trees examined only the last one showed beetle exit holes. Each tree was taken in turn and the bark and cambium layers were carefully shaved off to reveal any larval galleries which might be present, but here again, with

the exception of the one tree, *no trace of borer attack or injury was found*. Instead, what I can only describe as a brown stain, was spreading up from the roots through the living bark and cambium tissues. This brown stain permeated the tissues right round the bole of the tree and was found from 1 to 3 feet up the trunks of the trees examined. There is a sharp line of demarcation between the healthy and diseased tissues. It is important to examine the trees first at the right stage, that is just as the leaves begin to wilt. In trees which have been dead for some time all the tissues have turned a uniform brown colour and the area of diseased tissue can no longer be seen.

The one tree showing exit holes was also examined by the same method and here a number of larval galleries were found in the bark, but the aggregate injury caused by all the larval workings was not nearly sufficient to have caused death. In many cases it was apparent that the tree had overcome the attacks as many of the galleries ended short with no pupal chamber or exit holes. The typical brown stain was found in this tree also. The trees examined varied from 3 to 8 inches d.b.h.

There is a small patch of silver-leaf trees growing in the Kirstenbosch garden area itself only a short distance from the area described above. These trees originated from seed sown there some years ago. This area is completely cleared of all underbrush, weeds, grass, etc., and the trees are consequently completely exposed to the elements. The mortality here has been particularly high.

A number of these trees were examined, living larvae and extensive borer injury were found in every dead and dying tree examined, and larvae were also found in trees which appeared particularly healthy and vigorous. In every case death could be ascribed to insect injury as the galleries had completely girdled the trees. It was quite common to find three to four larvae in the bole of a tree 2 to 3 inches in diameter and Mr. Thorns reports having found well over a dozen in some trees of equal size. None of the trees in this area exceeded 3 inches in diameter. No trace of the brown stain in the tissues was observed.

#### CONCLUSIONS TO BE DRAWN.

From the evidence obtained from this investigation, I have arrived at the following conclusions:—

- (1) That where the silver-leaf tree is growing under natural conditions, it would seem that the dense growth of underbrush by creating shady conditions and protection for the young trees prevents borer attack in the early life of the tree.

(2) Older trees in such areas are certainly attacked but the percentage of trees attacked is comparatively low, probably in the neighbourhood of 25%, but this point has not been established. Mr. Joubert, it will be remembered, stated that there was in no case evidence of extensive borer injury. It is my impression that those trees which are attacked, only become vulnerable when they clear the undergrowth and grow out into the sunlight.

(3) I am convinced that the injury to such older trees, which are attacked, is seldom, if ever, extensive enough to cause death. As the trees become older, they produce a very thick bark. This bark is peculiar and unlike the bark of any tree that I have yet seen, in that all of it remains alive, green and full of moisture. All larval galleries seen in the older trees never penetrated beyond the bark and the vital cambium remained uninjured. It would appear that the insect finds sufficient nourishment in the bark alone for its development, and for this reason could not possibly kill the tree. In young trees up to 3 inches diameter the bark is very thin and the larvae are thus forced into the cambium layer, thus causing fatal injury.

The survival of the larger ringbarked trees containing borers may be cited here as supporting evidence.

(4) It seems clear, therefore, that in the natural habitat of the silver-leaf tree the Buprestid borer *Sphenoptera sinuosa* is not responsible for the death of the trees or even indirectly concerned therewith, but that some other agency is responsible, the outward and visible sign of which is a spreading brown stain which works up through the living tissues from the roots. I should not like to hazard a guess what this agency might be, it seems purely a matter for the Mycologist and Plant Physiologist.

(5) On the other hand, where the silver-leaf tree is grown in pure stands in open fields, or as isolated

ornamentals in gardens, etc., it then becomes exposed directly to attacks by this borer. An environment has then been created which is particularly favourable to the insect. Young trees up to 3-inch diameter are heavily infested and succumb to the attack. If the trees survive the early years of their life and reach the stage when they begin to produce a thick bark they will then probably resist attacks by the insect. The question as to whether trees growing under what are undoubtedly unnatural conditions may be termed vigorous is perhaps beside the point, but one must mention in passing that such factors as soil moisture, desiccation, sun scald, injury to the bole by wind movements, etc., may produce in the trees a non-vigorous condition and may make them less resistant to borer attack.

(6) As the growing of silver-leaf trees under the above conditions now appears to be a well established practice, it must be pointed out that under such exposed conditions the insect must be regarded as a primary pest capable of destroying the tree, at least in the first 3 to 4 years of its life. Whether the other agency is also at work in trees under cultivation has not been ascertained, but it is significant that Mr. Munro reports a large tree in a garden in Claremont as "quite rotted away at ground level".

(7) There are no known control measures which will prevent trees being attacked by *S. sinuosa*. Various repellent washes and sprays have been tested overseas for closely related species, but no satisfactory preparation has yet been evolved. The trunks of small trees could be protected for a considerable time by the use of tarred paper or wire gauze guards.

(8) Further observations on the life history and habits of the insect are in mind, but shortage of staff makes any lengthy and continuous investigations impossible.



# The Magic of the Cycad Forest

By FRANCES MILNER.

DAVID, Charles, and I turned south at Smit's Drift, which crosses the Malip's River, drove through Malopo's location, and marvelled anew at the splendid beauty of the Iron Crown, a battlement of the Drakensberg Mountains. Finding a road running west, we breasted the steep and winding ascent, till we ran on to a broad spur, from which one's delighted eyes could rove over many thousands of miles, from the fine masses of the mountains in the south, marking the pointed headland called Mamathola, Mount of the Singing Birds; ranging eastwards to where lay the Game Reserve, lion-haunted, sweeping the expanse of sky until our eyes lighted on two rounded kopjes lying warm and distant, called by Rider Haggard Sheba's Breasts. "There," said Charles, "is Queen Modjadjie's Kraal. The heart of Africa seems to beat within her breast, a cruel heart some say, but the great Queen who has ruled that large tribe of Lobedus for forty years, by witchcraft maybe, must also know statesmanship." "What is the dark point pushing up from the rest?" I asked. "That is the Hill of Execution, and on it, and covering the spur for over 5 miles, is the unique cycad forest; there is no other like it in the world."

I must have looked longingly at David, for he and Charles exchanged a smile, and Charles said: "I have been granted an audience with the Queen; I am going to the Royal Kraal to-morrow, and could take you. It is a great honour, let me tell you; she is very inaccessible. Would you like to see the letter, written by one of her Indunas?—'Queen Modjadjie greets Mr. Charles. Queen Modjadjie will be pleased to see Mr. Charles to-morrow.'" And so it was arranged.

To-morrow came, and full of excitement we set off; through the aromatic saligna forests, lifting their gipsy-brown finger-tips skyward, up to the wild ridge from which, to the south, we had a marvellous panoramic view of the Drakensberg Mountains, and to the east we gazed across the wild territory ruled over by the mysterious Queen Modjadjie, reigning over her widely dispersed Lobedus with despotic power.

Turning east we entered the Selukwe River valley, where the road led us through high ramparts of rock, which hid the glories of the Low Veld, bearing on its

distant bosom blue kopjes like islands in an unfathomable sea. Tree ferns over six feet high clustered in the vleis, like brown men with feathered head-dress; we passed a young girl clad in strings of beads and a small piece of cloth, carrying on her gracefully poised head a huge kaffir pot ornamented with a diamond pattern cut in the clay; a child with turkey feathers stuck in its woolly hair. Bracken grew by the roadside, sweet smelling but lacking the gorgeous colours of a more temperate clime. Now we caught a glimpse of the Molototse river which flows through Modjadjie's location. The way became very stony and steep. Very little effort had been made to cultivate the barren ground, though here and there was a patch of pumpkins guarded by a small skinny boy perched on a shelter rudely built of sticks and grass. "From what?" I queried; "I have seen no birds or small animals here." "Queen Modjadjie does not protect the wild life," said David, "but she looks after the murulu trees. They bear a plum-like fruit, very aromatic in flavour and having so large a stone that the amount of flesh surrounding it, looking like soap jelly, is hardly worth the eating; these are used to ferment the kaffir beer, which serves the native both for drink and medicine."

The gorge of the Molototse is a wide one, and high cliffs on either side swept onwards to end abruptly in a pale shimmering view of the Low Veld. We caught the light from a waterfall springing from some secret cavern in the rocks. True, there was no mysterious tunnel as in Rider Haggard's "She" as we approached the Royal Kraal, but a steep twisting stony way, up which our car clawed its ascent like a cat up a wall. Charles stopped the car under the shade of a huge fig tree. Now began a stony up and down walk of a mile and a half to the cycad forest.

Modjadjie's Location used to cover 600 square miles, extending from Mokeetsi, the Great Letaba and the Molototse rivers. This large area has shrunk to some 150 square miles, *fide* Mr. Krige.

"The colony of cycads (whose botanical name is *Encephalartos transvenosus*)" said Charles as we trudged along, "is confined to the south-east slope of a 'squirrel ridge' some five miles in length. It is very curious that this extraordinary and luxuriant colony





PLATE II: Cycads at Modjadjies Kraal.





of cycads should be so limited, with only a few isolated exceptions in the immediately surrounding slopes and valleys. There are but three other specimens, said to grow in the sacred rain 'temple' and burial ground of the Lobedu queens; for the rest, they crowd densely on this one rocky spur of the surrounding foot-hills, and it is significant also that they grow mainly on the east-south-east slope of the hill." "Not so significant," said David; "that is the main rainy quarter." "They grow densest down the deep ravines or gorges that score the flank of the hill," continued Charles, taking no notice of David's interruption, "and these deep ravines are literally choked with the glossy green-fronded crowns."

In a moment or two the rocky path ended and we stepped on to a gently sloping ascent leading up to the forest and Hill of Execution. Never having seen the "Modjadjie Palm," as this cycad is incorrectly called, except in a garden, the first sight of these great giants of a bygone age took our breath away. They clustered together in charming groups, lifting their varied tinted leaves towards the hot blue sky, reflecting its mysteries in their dark glossy surface. The cycads were informed with great beauty; we felt as we looked at them as if we were in a dream; as we climbed higher their numbers increased, and towering above us they were outlined in majesty against the blue of the distant Low Veld. Now and again there sprang from their crowns the huge seed-bearing cones, some breaking apart, their bright vermilion seeds scattered among the dark fronds, or lying on the ground beneath. The average height of this colony of *Encephalartos trans-venosus* would be perhaps from twelve to fifteen feet, with all lesser degrees of youngsters descending to seedlings a few inches high, the latter sprouting freely in between rocks and in crevices, for the colony thrives in a natural rock-garden of slabs and boulders penetrating and overlying a deep rich humus, exceedingly well drained. These cycads take centuries to grow; we took the approximate height of the tallest we saw by posing David beside it, he being six feet three, from which we judged this giant must be all of 24 feet! Specimens planted in gardens, under the best conditions, take thirteen years to grow one foot of trunk!

The cycads, scattered here and there about the world, furnish the botanist with a link between the flower- and fruit-bearing trees and the ferns, mosses, sea-weeds and fungi, all destitute of pistils and stamens, and having concealed or obscure fructifica-

tions. *Encephalartos* is a cycadaceous plant belonging to the order Gymnospermae. Cone production in the Modjadjie Cycad begins in early Spring; the crown of the tree, about the size of a soup plate, is seen to be covered with a brown growth like cotton wool, about four inches thick: the seed cones—two to four in number—can be noticed pushing up through this protection, and they also are covered with a silky sheath. The majority of the cones are 2 feet long and 1 foot in diameter at the base; they are composed of a spongy yellow core, surrounded by hundreds of curious bracts 3 inches by 2 inches each firmly holding two fleshy seeds 2 inches by 1 inch, of a vivid vermilion. The upper part of the bract is shaped like a ram's head, the rough yellow-brown back of the "head" forming the beautifully patterned outside of the cone. In the centre of the spongy cone is a hard stalk, 3 inches thick at the base. Some of these cones weigh 60 lbs. and as soon as they are ripe they disintegrate and throw their brilliant treasures on the ground. From the bud stage to the ripened seeds takes a year, but in this semi-tropical part of South Africa this cycle can occur at different times of the year. The male cycad carries his life-giving pollen in narrow cones 12 inches by 4 inches springing from the axils of the lower leaves; not for him is the splendid display of his brilliant consort, though his cone resembles hers in design; the small bracts, about 1 inch by  $\frac{3}{4}$  inch, are thickly covered on their outer surface with tiny cases opening like mussel shells, and shedding the dust-like pollen.

The trunk of this *Encephalartos* is extremely rugged, covered with a rugose diamond pattern denoting the bases of former fallen fronds, which spring with great regularity round the trunk, always keeping the form of a circle. From the centre springs each new frond, curling upwards like that of a fern, very well protected by a silky sheath. The leaflets are intensely glabrous, and slightly recurved. The fronds grow to some six feet in length on well-grown trees, and each leaflet is set flat in the frond, alternating up the rachis, neatly spaced, and the lower ones several inches long, gradually narrowing to the tip and never over-lapping one another. The leaflet is armed with strong teeth, varying from three to seven a side, with a really useful weapon spiking the topmost!

Australia owns the giant cycad *Macrozamia*, plants of which were considered the largest cycads in existence until Modjadjie's forest was discovered.



Exploring further we scrambled as far as we dared over the broken edges of the spur, the sides of which were cut into chasms by the furious storms which sweep against it from the south-east. Some of the great cycads clinging to the verge had failed to resist the onslaught, and were tossed across the chasms forming (to me) intriguing bridges. David did not care much for my small adventurings, and he and Charles led the way upwards to the point of the spur from which fell away a sheer precipitous smooth face of rock, overhanging a drop of several hundred feet far down into the cycad- and bush-choked jungle below. At this sinister spot, during the reigns of the former Modjadjie and her predecessor who (according to the late Rev. Fritz Reuter of the Berlin Mission, the first European to settle in Modjadjie's country during the eighties of the last century) were tyrants

and fiendishly cruel despots, victims of the royal displeasure were hurled from this Execution Rock to their death below.

After paying our respects to Queen Modjadjie—and our visit would make another story in itself—we thoughtfully turned for home, feeling that we were leaving a scene of archaic wonders. The setting sun was turning the shining fronds of the cycads to purple and the great clouds were piling in the east like golden galleons. I thought of these mammoths of a bygone age, comparing them with the giant creatures of the Low Veld; the elephant, crashing its way through the bush with calf at foot, the thousand year old cycad standing amid the wreckage of its fallen comrade, from under whose rotting girth spring the infant plants which, in years to come, may see the apotheosis of civilisation for which the heart of man strives.

## Report of the Sub-Committee on Veld Conservation, August, 1944.

THE Sub-Committee, appointed by the Council of the Botanical Society in June 1944 and consisting of Mr. Hugo-Brunst, Professor R. H. Compton, and Captain C. Struben, has met twice in addition to having informal discussions, considering memoranda, etc., and now reports as follows:—

The problem of veld conservation has two distinct aspects, viz., that of the land-owner and that of the public generally. Both the owner of land and the public find that their interests require more protection than they have at present.

The private land-owner, if his land bears forest or plantations, can obtain legal protection for his "private forest" by having it proclaimed as such in terms of the Forest Act (No. 13 of 1941).

But whereas "Crown Forest" may include "veld" (which, incidentally, is not defined in the Act), a "private forest" does not do so, but relates to trees only. Private owners (which include public bodies, companies, etc.) therefore do not enjoy the same control over their veld as the Crown. In the case of veld (whether undemarcated Crown land or private land without trees) there is no protection except the futile action for trespass.

It must be constantly borne in mind that the public, not being wrongdoers, enjoy privileges of access to

mountains and open country which date from an immemorial past, and which need to be safeguarded in the case of any legislation which may be used against them. It is commonly considered that while it is reasonable for an owner to protect his trees, which have a certain monetary value, it is unreasonable to exclude the public from his veld which generally has no such definite monetary value. The difficulty is to distinguish between the potential wrongdoer (vagrant, marauder, thief, incendiary and so on) and the harmless walker, naturalist or mountaineer for whom all possible privileges of access should be maintained.

The Forest Act contains the important proviso that the Governor-General must be "satisfied that the public interest will not be prejudiced" before he applies to a private forest the Act's provisions relating to Crown forests. (Sect. 3 (2).) In any extension of the Act to cover "veld" as well as "forest" it is imperative that this stipulation should be observed.

Subject to the above proviso, the Sub-Committee considers that the private owner should have the support of the law in respect of his veld as well as of his forest. That is, the provisions of Sect. 16 "Minor Offences in Crown Forests" would be substituted for those at present in Sect. 17 "Minor Offences in Private

Forests"; this would abolish the present prohibition of entry on a mere local newspaper notice, but would make offences under the Act include breaking up land, hunting, honey gathering, negligence in respect of fire, contravention of the conditions of permits, allowing animals to stray, interfering with notices, etc. (without authority). It would also protect "veld produce" in the same way as "forest produce".

The additional powers given to the private owner by the extension of the Forest Act to cover "veld" should carry with them an increased responsibility on his part towards the public interests. It is now widely recognised, for instance, that the destruction of vegetation in a mountain or water catchment area leads to disastrous consequences in the foothills and plains below—destructive floods, silting of dams, reduction or cessation of streams in the dry season, etc. An owner of land in a catchment area may maintain that he has a perfect right to burn his veld: yet by doing so he is inflicting damage and loss on other owners of more valuable farm land in the area below, and such owners have no recompense for the consequent deterioration of their property. This is an absurd state of affairs.

If the owner of a farm in the catchment were to build a dam across a perennial stream and so deprive the lower riparian owners of water, they would be able to assert their rights in law; but if he does the same thing by the somewhat less obvious method of destroying his "own" vegetation they have no redress. It should be clear that all such owners, and in fact the public generally, for whom water is a prime necessity, have a definite interest in catchments, and therefore in the vegetation of such areas, whether in public or in private hands.

If this principle is admitted, as it should be, it follows that, in the public interest, the burning of mountain veld should not be left to the discretion of the owner alone.

It may be noted that the Forest Act makes a number of excellent provisions for the regulation of the burning of fire-belts. There is, however, no attempt to regulate private veld-burning, except that if a fire "occurs" within half a mile from the boundary of a Crown forest, or if it appears likely to endanger life or property, a forest officer or any person acting in good faith may attempt to extinguish it. But apparently the owner of the land on which the fire takes place is not restrained from starting the fire in the first place, does not necessarily have to give notice

to his neighbours, can burn at any time he chooses, and is not usually liable for any damage, direct or consequential, which may be suffered by others. In fact, the owner is less restrained in his fire-making under the new Act than he was under the old.

This freedom allowed to the land-owner is all the more astonishing when it is remembered that in the great majority of cases veld-burning, at any rate in the mountain catchment areas, is practised for insufficient and mistaken reasons. The chief of these, for which justification is alleged, is the improvement of grazing. The arguments against this are cogent. The mountains provide no good natural pasture: the value of the few goats or scrub cattle which they can be made to support is negligible compared with the public value of the vegetation which is destroyed in order to give them the barest subsistence: the "improvement" as a result of burning is very fleeting, and progressive deterioration is caused which leads eventually to complete sterility, a process only too evident in the Cape mountains.

The "public value" of mountain vegetation is difficult to assess in monetary terms, but it is certainly enormous. The problem is how to maintain that public value against the destruction wrought by ignorant, retrograde and self-interested owners.

It is realised, of course, that graziers are not responsible for all fires: in the vicinity of towns, especially, fires are caused by careless and malicious people: there are also other direct causes, e.g. firewood gathering and flower picking. But in the country generally it is the graziers and their employees who are chiefly to blame. In any case, the malicious and the careless incendiaries can be checked to some extent by the extension of the Forest Act to cover "veld" as recommended in this report. The land-owner himself must be controlled by some other means when and where the public interest demands it.

Two methods of restraint may be employed:—

- (a) Transference to public ownership of mountain land. It is fortunate that great areas of the mountains remain unalienated as Crown Land, and it should be a strict principle that no further alienations of such land should take place. Considerable areas of privately owned mountain land have in recent years been bought back by the Government and put in the control of the Forest Department. This process should be strenuously continued: ample funds should be made available for the purpose: the land should be patrolled and



protected against fire: grazing leases and permits should never be given: soil and water conservation through veld-protection is the guiding principle by which they should be administered.

The Forest Act (Sect. 5) makes possible the expropriation by the Governor-General of any piece of land, in the national interest, as a "conservation area," temporary or permanent. These compulsory powers would be rarely used, purchase by agreement being the normal method: such purchase should be permanent.

- (b) In the case of land remaining in private ownership a different method of restraint on the anti-social activities of the owner is suggested. It is not possible to enforce one uniform law for the whole Union prohibiting veld-burning: conditions are so diverse that some sort of local autonomy is necessary, especially as it is the *local* people in an area who are most directly affected by burning in their own catchment. It should therefore be in the power of local bodies, each concerned with one catchment area, created for the purpose and including local municipal and divisional councils as well as land-owners and others directly interested, to give or withhold permission to burn the veld on any particular piece of land in that area. In the case of an unauthorised fire the onus of proving responsibility therefor should lie on the owner.

Measures of this kind will not prevent all fires: no such sweeping claim can be made. They will, however, reduce their frequency. Occasional fires are inevitable,

and when they occur they may be fierce: fire-belts and fire-fighting organisations are necessary to check the spread of such fires. But it is the *frequency* of burning on particular areas which in the long run brings ruination to that area and to the district in whose catchment it lies. The vital necessity is to prevent the frequent and deliberate burning of the veld, and it is to this end that we make these recommendations.

This principle should be applied to other methods of destruction besides burning.

To summarise, we recommend that:

- i. The Forest Act should be enlarged to cover "veld" as well as "forest", subject to the maintenance of public rights and reasonable interests.
- ii. The policy of the resumption of mountains and catchment areas by the Government should be carried out in an active and comprehensive way.
- iii. Local conservation bodies should be set up in the various geographical areas with the function, among others, of determining whether and under what conditions individual private owners should be authorised to burn or otherwise destroy the vegetation of their veld.
- iv. If a sufficient measure of agreement on principle can be attained, a permanent Conservation Commission with statutory powers should be established to co-ordinate the work of the local conservation bodies and to exercise authority under a new Veld and Forest Conservation Act in all conservation matters not falling within the province of the Forest Department.

## Comments by the Government Department of Agriculture.

The following letter from the Secretary for Agriculture has been received by the Botanical Society, and permission has kindly been granted for its publication along with the above Report.

To the Hon. Secretary, Pretoria, 9th Feb., 1945.  
*Botanical Society of South Africa.*

Sir,

I am now able to furnish you with the following comments on the report submitted by your Society in connection with the problems of forest and veld conservation:—

1. The Department appreciates the fact that the Forest and Veld Conservation Act, 1941 (Act No. 13 of 1941) to some extent differentiates as between Crown and private forests, especially in so far as Section 16 of the Act provides more comprehensive protective measures for Crown forests than Section 17 provides for private forests. This is, however, unavoidable, for it is not always possible to apply the same restrictive measures to private land as to Crown land.

Under ordinary circumstances a private land-owner automatically enjoys the legal protection for his forest,



## THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA.

as provided by Section 17 (without the necessity of having it proclaimed), and in addition he can also have recourse to the protective measures provided by common law, e.g. the laws relating to trespass, police or game. The Act, however, goes further and by Section 3 (2) affords an owner the means by which he can cause the provisions relating to Crown forests also to be made applicable to his private forest. It is when this extension of protection is required that it is necessary to have a private forest proclaimed.

The Department is prepared to support an application from an owner of a private forest to have the consolidated provisions of Section 16 applied to his forest provided that it is in the public interest and provided further that only a *bona fide* forest or plantation is included in the area proclaimed. As regards these requirements the Department is bound by the Act itself.

A further distinction between Crown and private forests indicated by the report relates to the wide definition of the term "Crown forest" which includes veld, whereas the definition of the term "private forest" is circumscribed to exclude veld. This matter of the limited applicability of the provisions of the Act to veld has been considered. The Department is not prepared to indicate at this stage whether certain provisions which are now applicable to forests only should be extended to apply to veld also, should it be in the national interest, or whether special legislation now under consideration, to deal with veld burning, the protection of mountain water resources and with other aspects of land use, would not be preferable.

2. As regards the need (i) for rigid control of the individual's right to burn his veld (especially mountain veld) and (ii) for greatly extended acquisition and permanent protection of mountain land by the State, the Department is in complete agreement with the

views expressed in the report and has repeatedly stressed these very points and views in its propaganda on the general subject of farming reconstruction and the conservation of natural resources. In this connection your Society's attention is invited to the recently issued departmental report on "Reconstruction of Agriculture" and more particularly to paragraphs 108, 123, 124, 126, 127, 132-136, 142 and 145-47 thereof.

It may also be pointed out that it is already the policy of the Government to acquire mountain catchment areas which are of importance in the conservation of the Union's water resources.

3. In so far as your Society's recommendation regarding local conservation bodies is concerned, the Department's general plan for the reconstruction of agriculture (vide paragraph 100 of the departmental report) envisages the subdivision of the country into a number of agro-ecological regions, each controlled by a strong organisation of local conservation officials, whose function will be to plan and direct effective conservation measures for the region as a whole. Such regional organisation would naturally consult any or all local bodies interested, but would itself form the local conservation body referred to.

4. The desirability of establishing an over-all statutory body (a permanent conservation commission as suggested by your Society's report) has been mooted from time to time. It is felt that the Union's needs can be best met by the establishment of the body envisaged in paragraph 146 of the Departmental report.

5. Finally I have to state that it is very gratifying to the Department that your Society is displaying such an interest in the important subject of the conservation of the Union's vegetation, water and land.

(Signed) *Secretary for Agriculture and Forestry.*

# THE BOTANICAL SOCIETY OF SOUTH AFRICA.

ANNUAL REPORT, 1944.

Your Council have pleasure in submitting herein—under the Thirty-first Annual Report and Financial Statement of the Society for the year ending the 31st December, 1944.

In spite of the present abnormal conditions, the interest of Members in the work of the Society has been maintained. During the year there has been a gratifying increase in Membership, as the following figures show, which have been calculated after allowance has been made in respect of Members who have resigned or who have died. The figures in brackets show the corresponding number of Subscribers at the 31st December, 1943.

|                   |    |    |       |         |
|-------------------|----|----|-------|---------|
| Life Members      | .. | .. | 93    | (91)    |
| Family Members    | .. | .. | 106   | (103)   |
| Ordinary Members  | .. | .. | 1,117 | (1,072) |
| Associate Members | .. | .. | 612   | (585)   |
|                   |    |    | <hr/> | <hr/>   |
|                   |    |    | 1,928 | (1,851) |

As shown by the Accounts annexed hereto, the Annual Grant to Kirstenbosch amounted to £1,028 17s. 1d., being approximately the same as last year. The amount to the credit of the Life Members' Fund is £1,230, being £100 greater than at the end of 1943 and representing the Subscriptions of four new Life Members. Investments total £2,116 14s. 5d.

**ELECTION OF OFFICE BEARERS.**—At the Annual Meeting held on the 18th April, 1944, the following were elected:—

*President:* Mr. W. Duncan Baxter.

*Vice-Presidents:* Professor R. H. Compton, Dr. D. Bennie Hewat and Mr. F. W. Metelerkamp.

*Members of Council:* Mrs. F. Bolus, Mr. H. Hugo Brunt, Mrs. H. Burton, Dr. L. Gill, Mr. F. A. C. Guthrie, Miss M. E. Johns, Mr. J. J. Kotze, Mr. J. D. Krige, Mrs. G. W. Lyon, Mr. John Martley, Colonel H. A. Moffat, Miss K. Murray, Mr. H. N. Porter, Mr. C. J. Sibbett, Miss E. L. Stephens, Captain Chas. Struben, Mr. E. W. McL. Thomas, Major G. B. van Zyl, the Rt. Hon. Chief Justice E. F. Watermeyer, and Mr. Wm. C. West.

Upon the resignation of Mr. Kotze, Conservator of Forests, on transfer to Pretoria, your Council elected his successor, Mr. C. H. Clayton, in his place.

**JOURNAL OF THE BOTANICAL SOCIETY, Part XXX, 1944.**—This number is expected to be ready for issue to Members at about the end of March, 1945, and will contain this Report and Accounts.

**DISTRIBUTION OF SEEDS.**—435 parcels totalling 6,679 packets of seeds were distributed to Members of the Society and to Botanic Gardens from Kirstenbosch and Whitehill, constituting a considerable increase over the year ended 31st December, 1943.

**ANNUAL GATHERING, 1944.**—This took place at Kirstenbosch on Saturday morning, 23rd September, under ideal weather conditions and with a fair attendance.

**KIRSTENBOSCH SUNDAY, 24TH SEPTEMBER.**—This event attracted fair support from the public and resulted in the collection of a substantial sum in aid of the S.A. Red Cross Society.

**KAROO GARDEN, WHITEHILL.**—The Society made available to the Trustees of the National Botanic Gardens a Grant of £147 1s. 10d. for the support of this Garden, to be paid over in 1945.

**WILD FLOWERS PROTECTION SECTION.**—The Membership of this Section remains at 292, the figure of the previous year. Professor Compton was re-elected Chairman of the Committee.

**SILVER TREES IN THE CAPE PENINSULA.**—This subject has been discussed at Meetings of the Council. A Report by Mr. F. G. C. Tooke, Forest Entomologist, on the investigation as to the causation of deaths among silver trees, was communicated to the Society and will be published in the Journal.

**VELD CONSERVATION.**—During the year a Sub-Committee of your Council composed of Mr. Brunt, Professor Compton and Captain Struben, drew up a Report, dated August, 1944, which contained their suggestions for certain amendments of the Forest and Veld Conservation Act of 1941, amendments which in the view of the Council are greatly needed. This Report is being circulated to Members of Parliament, Public Bodies and other interested parties, and will be published in the Society's Journal.

**OBITUARY.**—The Council desire to express their sincere regret for the loss the Society has sustained by the death during the year of a number of old

## THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA.

Subscribers to Kirstenbosch and Whitehill. Among them were two Life Members: Mr. Thomas Meikle, of Rhodesia, and Mr. J. B. Taylor.

The late Mr. Taylor had greatly assisted Kirstenbosch by inaugurating the *Cape Times* "Save the Silver Trees" and Research Fund in 1934, by presenting an essential oil still, and by a generous donation of £500 in 1936: he was also associated with the late Sir Abe Bailey in defraying the cost of the attractive show cards inviting support of the National Botanic Gardens by means of membership of the Botanical Society.

THANKS.—Your Council wish to express their great indebtedness to the South African Association for the free use of their Board Room for Meetings of Council and the Wild Flowers Protection Committee, and to the Press for their co-operation in reporting the proceedings of the Society.

C. J. SIBBETT,  
*Chairman.*

L. A. SOLOMON,  
*Hon. Secretary and Treasurer.*

### Report by the Wild Flowers Protection Section Committee for the Year Ending 31st December, 1944.

Your Committee met on four occasions during the year under review. Included in the business transacted were the following items:—

ILLEGAL SELLING OF WILD FLOWERS.—On the initiative of Mr. William C. West, a Member of the Committee, and with the co-operation of Colonel Devenish and members of the Police Force under his Command, strong measures have been taken to deal with sellers of protected wild flowers on the central stands in Cape Town and elsewhere. Apart from the confiscation of such flowers, the delinquents have been prosecuted and fined, with the result that there has been a considerable improvement in the position. Your Committee have had under consideration the appointment of an official with police training and full authority to keep a watch on parties making illegal sales of flowers. An album containing illustrations of about 120 of the protected species in the Caledon Division and its immediate neighbourhood has been prepared by Mrs. Bolus and is available for the Magistrate at Caledon and the Public Prosecutor at Grabouw.

RESERVES.—During the year a Sub-Committee under the Chairmanship of Mrs. Bolus, formed to investigate the possibility of establishing further Wild Flower Reserves, initiated the formation of a Reserve at Viliersdorp and have been in negotiation for further Reserves to be established at Milnerton, Noordhoek, Tulbagh and East London, bearing in mind the im-

portance of their being formed in the vicinity of schools.

EXPORT OF WILD FLOWERS.—From time to time your Committee have been asked by the Provincial Authorities to report on applications received by them for permits to export wild flowers from the Cape Province under the Provisions of Ordinance No. 7 of 1943 and in response the views of the Committee, approving or objecting to the application, have been given in each case.

GENERAL.—The Membership of the Section stands at 292, the same figure as last year, several resignations, etc., having been offset by new contributors.

The amount to the credit of the Section as at 31st December, 1944, was £395 3s. 9d., being an increase of £68 8s. 6d. on the figure at the end of the previous year.

The Members of your Committee that held office during 1943 were re-elected at a Meeting of Council held on the 26th May, 1944. Subsequently, on the resignation of Mr. J. J. Kotze, Conservator of Forests, upon his transfer to Pretoria, his successor, Mr. C. H. Clayton, was elected in his place and agreed to serve.

R. H. COMPTON,  
*Chairman.*

L. A. SOLOMON,  
*Hon. Secretary and Treasurer.*



|  | £     | s. | d. | £      | s. | d. |   | £   | s. | d. | £      | s. | d. |
|--|-------|----|----|--------|----|----|---|-----|----|----|--------|----|----|
| Life Members' Fund as at 31st December, 1943 .. ..                           | 1,130 | 0  | 0  |        |    |    | Cape of Good Hope Savings Bank: Deposit with Interest at 3½% p.a. accrued as at 31.12.1944                  |     |    |    | 611    | 15 | 10 |
| Received during 1944 ..  | 100   | 0  | 0  |        |    |    | United Building Society: Fixed Deposit for 12 months Interest at 3% p.a. accrued ..                         | 424 | 7  | 2  |        |    |    |
| Subscriptions Paid in Advance ..   |       |    |    | 1,230  | 0  | 0  |   |     |    |    | 430    | 2  | 2  |
| Subscriptions to Karoo Garden, Whitehill:                                    |       |    |    | 56     | 18 | 6  | Savings Bank A/c with Interest at 2% p.a. accrued ..  | 5   | 15 | 0  |        |    |    |
| Balance as at 31st Dec., 1943  | 12    | 19 | 10 |        |    |    | S.A. Permanent Building Society: Fixed Deposit for 12 months Interest at 3% p.a. accrued ..                 | 344 | 4  | 11 | 88     | 10 | 3  |
| Received during 1944 .. ..   | 134   | 2  | 0  | 147    | 1  | 10 |   |     |    |    |        |    |    |
| Subscriptions to the Wild Flowers Protection Section:                        |       |    |    |        |    |    | Fixed Deposit for 12 months Interest at 3% p.a. accrued ..  | 636 | 10 | 9  | 351    | 4  | 0  |
| Balance as at 31st Dec., 1943  | 327   | 5  | 3  |        |    |    |   |     |    |    |        |    |    |
| Subscriptions received, 1944 .   | 68    | 17 | 0  |        |    |    | Fixed Deposit for 12 months Interest at 3% p.a. accrued ..  | 8   | 11 | 5  | 645    | 2  | 2  |
| Interest on Fixed Deposit received during 1944 .. ..                         | 6     | 7  | 0  |        |    |    | Wild Flowers Protection Section: Fixed Deposit for 12 months with the S.A. Permanent Building Society .. .. | 213 | 4  | 2  |        |    |    |
|  |       |    |    |        |    |    | Interest at 3% p.a. accrued ..  | 5   | 1  | 6  |        |    |    |
| Less:—   |       |    |    |        |    |    |   |     |    |    |        |    |    |
| 5% of 1944 Subscriptions credited to General Administration Expenses £3 8 10 |       |    |    |        |    |    | Cash at the Standard Bank of S.A. on Current Account ..   | 218 | 5  | 8  | 395    | 13 | 9  |
| Stationery, Bank Charges, etc. .. .. 3 6 8                                   |       |    |    |        |    |    |   |     |    |    |        |    |    |
|  | 6     | 15 | 6  |        |    |    | General Account: Cash at the Standard Bank of S.A. on Current Account ..                                    | 177 | 8  | 1  | 342    | 10 | 7  |
| Bailey-Taylor Show Card issue ..   |       |    |    | 395    | 13 | 9  |   |     |    |    |        |    |    |
| National Botanic Gardens:  |       |    |    | 6      | 7  | 7  |   |     |    |    |        |    |    |
| Surplus for 1944 .. ..   |       |    |    | 1,028  | 17 | 1  |   |     |    |    |        |    |    |
|  |       |    |    |        |    |    |   |     |    |    |        |    |    |
|  |       |    |    | £2,864 | 18 | 9  |   |     |    |    | £2,864 | 18 | 9  |

[illegible]

R. M. JOUBERT,  
Chartered Accountant (S.A.),  
Incorporated Accountant.

# List of Members of the Botanical Society.

(LIFE MEMBERS: FAMILY MEMBERS: Ordinary Members: Associates.)

The star (\*) indicates Members who are also Subscribers to the Karoo Garden, Whitehill.  
The cross (†) indicates Members who are also Subscribers to the Wild Flower Protection Section.

In case of any inaccuracy in the following list it is requested that notification should be made to the Hon. Secretary,  
P.O. Box 267, Cape Town.

|                                 |                                  |                                 |                                 |                                 |
|---------------------------------|----------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <i>Honorary Members:</i>        | <i>Armstrong, Major H. W.</i>    | <i>BAXTER, MRS. W. DUNCAN</i>   | <i>Bolton, S. A.</i>            | <i>BROWN, O. A.</i>             |
| † <i>MATHEWS, J. W.</i>         | * <i>ASHLEY STREET</i>           | <i>Bayley, Miss M.</i>          | † <i>*BOLUS, Dr. L.</i>         | * <i>Brown, R. C.</i>           |
| <i>PEARSON, MRS. E. E.</i>      | <i>PRIMARY SCHOOL.</i>           | † <i>*Beard, H. R.</i>          | <i>Bond, W. P.</i>              | <i>Brown, Dr. &amp; Mrs.</i>    |
| <i>A.</i>                       | * <i>ASHTON, DR. M. L.</i>       | <i>Beattie, Sir J. C.</i>       | <i>Bond, Mrs. W. P.</i>         | <i>Brugman, R.</i>              |
| <i>ABBOTT, W. C.</i>            | * <i>Atkins, Mrs. G.</i>         | <i>Beck, Col. A. A.</i>         | <i>Booth, Mrs. A. S.</i>        | † <i>*Brunt, Major J. W.</i>    |
| † <i>Abernethy, Miss O.</i>     | * <i>Atkins, Mrs. J.</i>         | <i>BECROFT, E. E.</i>           | <i>Borchers, Mrs. J. S.</i>     | † <i>*Brunt, Mrs. J. W.</i>     |
| <i>Ablett, A.</i>               | <i>Attwell, Mrs. C.</i>          | <i>Beetge, J. A.</i>            | <i>Borchers, Mrs. R. B.</i>     | <i>Bryce, R. P.E.</i>           |
| <i>Abrahams, Chief Rabbi</i>    | <i>Attwell, R. I. G.</i>         | <i>Behr, C.</i>                 | * <i>Borlase, Mrs. E. A.</i>    | <i>Buchanan, A.</i>             |
| <i>Israel</i>                   | † <i>*ATTWOOD, MR.</i>           | <i>Bell, Mrs. G. Q.</i>         | <i>Bosch, H.</i>                | <i>BUCHANAN, A. B.</i>          |
| <i>Ackerman, D. J. J.</i>       | <i>MRS. L.</i>                   | <i>Bell, Mrs. J.</i>            | <i>Bosenberg, Mrs. C. H.</i>    | <i>Buchanan, Mrs. D. M.</i>     |
| <i>Ackermann, Mrs. H. D.</i>    | <i>B.</i>                        | <i>Bennett, A.</i>              | <i>BOSS, J. N.</i>              | <i>Buchanan, G. O.</i>          |
| <i>Adams, Mrs. E. V.</i>        | <i>Babbs, A. T.</i>              | * <i>Bennett, W. H.</i>         | † <i>*Boswell, Mrs. H.</i>      | * <i>Buchanan, Mrs. F.</i>      |
| <i>Adams, Mrs. P. M.</i>        | <i>Babbs, Mrs. A. T.</i>         | * <i>Bennett, Mrs. W. H.</i>    | † <i>*Botha, C. C.</i>          | <i>BUDDÉ, J. K.</i>             |
| <i>Adamson, Mrs. D. A.</i>      | <i>Back, Mrs. S. R.</i>          | <i>Bergh, Miss J. C.</i>        | <i>Botha, Miss S.</i>           | <i>Buhr, H.</i>                 |
| † <i>ADAMSON, PROF. R. S.</i>   | <i>Bacon, Mrs. A. D.</i>         | <i>Berman, P.</i>               | <i>Bothner, Mrs. C.</i>         | <i>Buisman, H. G.</i>           |
| <i>Adendorff, Mrs. P. J.</i>    | <i>Bailey, Mrs. A. M.</i>        | <i>BERTENSHAW, J.</i>           | <i>BOUCHER, C.</i>              | <i>Buissine, Mrs. M.</i>        |
| † <i>Aiken, Mrs. A.</i>         | <i>Baillie, Mrs. B. M.</i>       | * <i>Bertram, E. C.</i>         | <i>BOURKE, MAJOR M. E.</i>      | <i>Buissine, T.</i>             |
| <i>AKERMAN, C.</i>              | <i>Bain, W. G.</i>               | <i>Bertram, Mrs. M. E.</i>      | <i>Bourke, Miss M.</i>          | <i>Bull, Miss H. O.</i>         |
| † <i>Albertyn, Dr. C. E.</i>    | <i>Bain, Mrs. W. G.</i>          | <i>Beukes, Mej. J. M.</i>       | <i>Bourne, Lady</i>             | † <i>Bullen, A. H.</i>          |
| <i>Albow, I.</i>                | <i>BAINES, COL. E. F. S.</i>     | <i>Bevan, Dr. C. E.</i>         | <i>Howen, J. W.</i>             | <i>BULLEY, A. K.</i>            |
| <i>Albrecht, C. W.</i>          | <i>Baker, B.</i>                 | <i>Beverley, Miss M.</i>        | <i>Bowes, J. H.</i>             | <i>Bullock, Mrs. E. A.</i>      |
| <i>Albu, Lady</i>               | † <i>*Ballantine, Dr. A. J.</i>  | <i>Beyers, Dr. C. F.</i>        | * <i>Bowker, H. M.</i>          | <i>Burkitt, Mrs. M.</i>         |
| <i>Albu, Lady Gertrude</i>      | <i>Ballenden, Mrs. S.</i>        | <i>Biccard, G. J. V.</i>        | <i>Bowles, W.</i>               | * <i>BURMAN, L.</i>             |
| <i>Aderson, Miss D.</i>         | <i>Barclay, L.</i>               | <i>Bickley, Miss</i>            | <i>Bowley, Mrs. M. A.</i>       | <i>Burns, J. R.</i>             |
| <i>Aldridge, K. W.</i>          | <i>Barclay, W. S.</i>            | † <i>*Bienenstock, Miss. S.</i> | <i>Boyd, H. C. W.</i>           | <i>Burton, Mrs. H. M.</i>       |
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# THE BOTANICAL SOCIETY OF SOUTH AFRICA.

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- (a) To encourage the inhabitants of South Africa to take an active part in the progress and development of the National Botanic Gardens at Kirstenbosch, and the Karoo Garden at Whitehill, and to induce them to appreciate their responsibilities therein.
- (b) To augment the Government grants towards developing, improving, and maintaining fully equipped botanical gardens, laboratories, experimental gardens, etc., at Kirstenbosch and Whitehill.
- (c) To organise shows at which may be displayed the results of botanical experiments or cultural skill in improving the different varieties of South African flora.
- (d) To enlighten and instruct the members on botanical subjects by means of rambles, meetings, lectures and conferences, and by the distribution of literature.
- (e) To promote the preservation of the Native Flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

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# The Importance of Humus

In view of the growing public awareness of the dangers of soil erosion, and the particular significance which must attach to its threat in the eyes of the Botanical Society of South Africa, the following observations deserve the attention of every South African who recognises the preservation and reclamation of our natural resources to be among the foremost tasks demanded of this generation. The views expressed, says a recognised South African authority on the subject, "apply in every respect to local conditions and, indeed, with even greater force than to the United Kingdom, since the natural controls are less conducive to soil stability in the Union than in the United Kingdom."

"...The methods of agriculture now practised in this country (i.e. the United Kingdom) fail in greater or less degree to return to the soil the organic waste materials which are a by-product of the life of plant, animal and man. This organic waste is the source of the humus which plays an important and essential part in soil fertility and in the nutrition of plants. Artificial fertilisers are applied to the land and these in many cases hasten the loss and destruction of humus. For the soil itself the most serious consequence is erosion, which may proceed to such a point that the cultivable layer is wholly lost and formerly fertile tracts become desert. Before this point is reached the conditions of life to which the plant has become accustomed during its long evolution are so changed by the lack of humus and the application of artificial fertilisers that its constitution is affected; it becomes susceptible to disease, and its value as food for man (whether directly or through animals nourished upon it) is deteriorated. The ill effects upon man are further accentuated

by the use of food, which have been altered by the abstraction or modification or destruction of essential constituents in processes of manufacture, preservation, or storage, while the poor quality of the food is concealed by elaborate seasonings and artificial flavouring that deceive and pervert natural instincts in feeding."

"...If we must eat more fresh, and therefore home-grown, food instead of imported and preserved foods, then we must make certain that the soil is sufficiently fertile to produce the volume that is needed. If the home-grown food that is produced is lacking in nutritive quality because the soil is impoverished of humus, then we must devise means of replenishing it with this essential constituent. The only obvious way of doing this is by returning to the land the city waste which is at present destroyed on sanitary and aesthetic grounds."

— F. C. R. Douglas, M.A., M.P. in an address to the Royal Society of Arts, London, on June 11th, 1941.

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